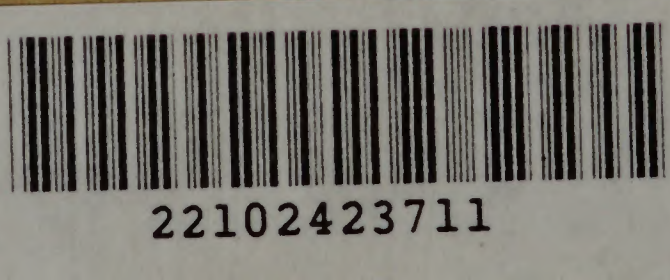
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Ars Veterinaria post medicinam secunda est.—*Vegetius.*

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THE

# VETERINARIAN.

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## Communications and Cases.

### ACTINOMYKOSIS BOVIS.

By J. Wortley Axe, Professor of Pathology, &c., at the Royal Veterinary College. (With drawings by Himself.)

(*Continued from* vol. lv, p. 832.)

*Symptoms.*—The disorder usually commences with an inconsiderable discharge of saliva from the mouth, and an accumulation of foam about the lips during the process of mastication. This may continue for some weeks without attracting more than a passing attention from the owner or herdsman. At first the discharge is somewhat thin, but as the mucous membrane acquires a catarrhal condition it is more consistent, tenacious, and ropy, and at the same time more copious. The implication of the Schneiderian membrane is similarly made known by a greater or less amount of a watery or mucous flux from one or both nostrils, accompanied by occasional sneezing and shaking of the head, as if to dislodge some offending agent from the nasal cavities, and sometimes also with stridulous or loud sonorous breathing. A slight manifestation of uneasiness of the mouth is soon shown by occasional protrusion and retraction of the tongue, and frequent movement of the organ from side to side. Inspection of the mouth at this time may fail to reveal any perceptible departure from the healthy state. Careful

watching, however, will soon detect some slight disturbance of the function of prehension, and if the food be hard, coarse, or angular, mastication is performed with difficulty, and may be relinquished and resumed again and again at brief intervals. As the malady progresses the process of feeding becomes more and more painful and protracted until food is altogether refused. At the same time the tongue exhibits marked stiffness and want of mobility, and fails in some measure to execute its function. It is likewise tender to the touch, besides being more dense and unyielding. The fingers passed over its surface recognise small rounded nodules beneath the mucous membrane, about the size of a hempseed to a pea. These may be widely scattered over the entire surface, or aggregated into groups, and confined to the anterior, posterior, or lateral part of the organ; others, discrete or confluent, are also sometimes found in the palate, gums, lips, and various other regions of the mouth.

Soon these nodules enlarge, and present themselves on the surface as prominent, circumscribed, tubercular-looking elevations, of a yellowish colour and firm consistence, or of a reddish or bluish appearance. Others, also, rise from the tongue as soft, yellowish, compact doughy excrescences (see Woodcut 1), mostly sessile, sometimes slightly pedunculated and flattened out like the pileus of a mushroom. The latter form is especially seen on the sides of the tongue, the cheeks, and about the frænum, where the membrane is thin and loosely connected with the underlying structures. They vary in size from a pea to half a walnut, or they may attain the dimensions of a cricket-ball. At this time emaciation has considerably advanced, and a slight bulging is noticed in the intermaxillary space, which proceeds to enlarge with the progress of the disorder. Prehension is now considerably interfered with, and the tongue swollen and painful, is extended with difficulty, and frequently fails to grasp the food or to convey it into the mouth. Mastication is now performed tardily and with evident pain, swallowing is rendered difficult, and an occasional cough will be heard. The food is turned about from side to side, during which some will be lost amidst a profuse discharge of saliva. As the fungus spots enlarge they undergo softening, and finally discharge their contents into the mouth. For some days an excavation remains, which may shortly heal or extend itself peripherally by ulceration or throw up soft fungus-like granulations. Before reparation is completed in the early lesions, fresh eruptions arise, and these may be succeeded by others, and thus the whole process repeats itself time after time, until the greater part of the tongue is more or less invaded. Should the disease continue, the tongue becomes enlarged in all its dimensions,

causing it to encroach upon the teeth. In this condition it suffers considerable attrition and erosion from the latter, as well as from its forced contact with the palate during mastication. There is now added to the specific lesions those of mechanical irritation, by which the organ becomes more acutely inflamed and so far enlarged, as to cause it to hang from the mouth in a swollen, livid, and paralysed state. These latter phenomena frequently coincide with more or less extensive gangrene, extreme fœtor and foulness of the breath, blood-stained saliva, and enlargement of neighbouring lymph glands. At the same time the breathing becomes embarrassed and attended with a loud roaring respiration, partly arising from pressure of the tongue against the laryngeal orifice and partly also from œdema of the respiratory mucous layer. Although the nodules may for a time disappear from the surface, the erosions and ulcerations heal up, and the tongue resume its proper function, it is by no means certain that all danger has passed away. A relapse more or less severe, with the development of a fresh crop of pustules and intractable ulcers, and a return of all the worst symptoms, may sooner or later take place, and proceed to a fatal termination. In protracted and severe cases the parotid and sublingual glands become hard and swollen from inflammatory irritation, but they do not, that I am aware of, participate in the special process characteristic of the disorder.

During the early stage of the disease the general health usually continues undisturbed, and in many instances of slight infection remains so throughout the attack. When, however, the eruption is extensive, and successive crops of fungus-spots continue to be thrown up, constitutional disturbance becomes marked and severe. After a period of slow, progressive wasting, the skin becomes harsh and dry, the hair erect, and the general expression dull and listless. A slight accession of fever soon follows, with occasional rigors, and rapidly increasing prostration and weakness. There is now acceleration of the heart's action, elevation of temperature, and great thirst. Diarrhœa may or may not supervene ; but should it do so, the patient rapidly undergoes extreme emaciation, and finally sinks from inanition, hectic, or occasionally from asphyxia or septicæmia.

*Pathology.*—It has already been pointed out that this disease is the consequence of the presence in the tissues of a peculiar actinoid fungus or endophyte, and that probably its entrance into the structures invaded is effected through surface lesions, or possibly through the mucous follicles, or the interstices of the epithelium. What is the nature of the life changes through which it passes in the course of its development, I am not able to state. I may, however, point out, as pertinent to the inquiry, that in

the course of my microscopical investigations, I have frequently met with fungus forms in a vegetative condition morphologically different from those under consideration. These consist of clusters or rows, or scattered spores, interspersed among the muscle fibres and inflammatory corpuscles, together with, or apart from, a well-defined mycelium. (Plate I, fig. 2.)

I have not, however, succeeded in tracing any connection or genetic relations between the two organisms in question. Further and equally important is the fact that in all examples of the disorder which have been brought to my notice, another remarkable feature has invariably presented itself, viz. the presence of large numbers of those low organisms, the psorospermiæ. (Plate II, fig. 2.)

These I have found enclosed within the muscle fibres, as ovoid clusters of minute, round, sporular-looking bodies; closely packed together within the myolemma, and enlarging the fibre to two or three times its natural diameter. This observation is confirmed by the experience of Professor Garside, of the Cirencester College, who informs me that while carrying on his investigations at the Brown Institution, which led to the first identification of the actinomycis in this country by Dr. Roy, he commonly met with these protozoal parasites in the tissues of the tongue. Although no connection whatever has yet been traced between the two organisms, the simultaneous and constant presence of the psorospermiæ is a fact of much importance, and may form a new and interesting starting-point for further inquiry into the etiology of the affection.

The characteristic feature of actinomykosis is the development of a new growth or eruption on the buccal and Schneiderian membranes, in the tissues of the tongue, walls of the mouth, throat, and possibly other parts of the digestive and respiratory tracts.

The specific development consists of small whitish or yellowish, opaque or translucent miliary granules, and yellowish nodular-looking growths. In some respects the naked-eye appearances of these fungus lesions is not unlike the tubercular eruption sometimes seen on mucous surfaces, and on this account the disease has frequently been regarded as tubercular stomatitis, from which, however, it differs in many important particulars both clinical and pathological.

The precise anatomical distribution of the growth is not, I believe, at present very clearly defined. Nor is its relative frequency in different parts well made out. I have found it in the tongue, palate, cheeks, lips, pharynx, tissues of the throat, Schneiderian membrane, periosteal and ossific tissues of the face, and it is likewise said to occur in other parts of the alimentary and respiratory tracts. Having regard, however, to my own

experience and the experience of English veterinarians generally, these latter observations I think need confirmation.

I believe I am correct in stating that in 60 or 70 per cent. of cases affecting the mouth, the disease is exclusively confined to the tongue. It is frequently seen affecting the bones and palate, more rarely found in the pituitary layer, while in the cheeks it is seldom observed.

*Tongue.*—The pathological changes presented by this organ vary very considerably in different cases, depending upon the extent, intensity, and duration of the malady, and the aggregrated or segregated state of the eruption. In the earlier periods of the disease it is more or less enlarged; this enlargement may be wholly due to the irritative action of the endophyte, or it may be greatly augmented by the acute inflammatory state which ensues upon the interrupted circulation, arising out of the overgrowth of the organ, and the consequent pressure and injury it receives from the teeth and walls of the mouth. In this latter state it is enlarged in all its dimensions, and presents a rounded form and a dark red or purple hue. Besides the specific lesions presently to be described, it also displays all those plastic and exudative changes peculiar to acute inflammatory disease.

In the typical form of the malady the tongue, although at first considerably increased in bulk, soon undergoes slow contraction and gradually diminishes in size throughout the diseased area. If examined at this time it will be found to be somewhat shortened and narrowed, and resolved into a more or less cylindrical condition. The contraction and shortening is most frequently and specially marked in its free portion. The apex now becomes obtuse and turns rigidly upwards. In some instances, when the greatest incidence of disease falls upon the base, a transverse constriction runs across the posterior part of the dorsum and sides (Woodcut 3), and various fissures and irregular puckerings are noticed upon the surface. The mucous membrane exhibits a more or less mottled aspect, comprising smaller or larger areas of white and yellow, interspersed with patches of purple or red. In the first-named parts the epithelial layer is thickened, rough and loose in texture, ragged, and readily scraped away; in the last it is partially or completely removed so as to expose the hyperæmic tissues beneath. The sides and dorsum, perhaps corresponding to similar lesions of the palate, exhibit superficial erosions or lacerations or deep, rounded, or ragged ulcerations. Here and there may or may not be seen small nodular elevations, isolated or in groups, rising from the surface. These are the special *fungus nodules*. They vary in size from a hempseed to a bean, are hard to the touch, rounded in form, circumscribed,

and of a yellowish colour. Sometimes they are soft and fluctuating, at others more consistent and doughy. The former contain inspissated pus, the latter caseous matter only or caseous pus. Other excrescences of a fungiform or rounded character sometimes appear upon the posterior part of the dorsum and sides of the tongue and about the frænum (Woodcut 1).

In form they are rounded or somewhat flattened, sessile or pedunculated; to the touch soft, but tough and coherent like spermatic tissue. In size they vary from that of a pea to that of a walnut, or even a large orange. The surface is smooth and regular, and of a pale yellowish colour. They have their origin in fungus nodules, of which they are organised outgrowths. On dividing the larger of these excrescences the surface presents a number of pale, shiny, fibrous intersections, some broad and thick, others smaller and more delicate, besides rounded, yellow, soft, tubercular-looking spongy masses of various sizes embedded in a greyish lymphoid-looking tissue. On incising the tumour the latter immediately stand out from the general surface as if they had been previously confined in a too limited space. If a scraping from one of them be examined microscopically it is found to consist of (1) long spindle cells with prominent ovoid or elongated nuclei, either isolated or more commonly connected together in a fibrillated manner; (2) small, round, granular-looking cells, many in a fatty condition, others shrunken or broken; (3) granular protoplasm and free fat; (4) irregular crystalline masses; (5) highly-refractive spheroidal particles about the size of a red blood-corpuscle; (6) actinomycetes.

Large areas of mucous membrane are sometimes removed in the course of the eruptive process, and replaced by superficial or deeper contracting cicatrices. It is chiefly on this account that the papillæ are found wanting, and the surface becomes rough and irregular. Local or general induration is commonly present. On section the organ cuts with a distinctly fibrous or gritty sensation, and offers a considerable degree of resistance to the knife, according to the amount and quality of the connective tissue growth present. The sectional surface presents a variety of pathological changes. The natural appearance of the tissues is considerably modified or even altogether erased by the adventitious growth of connective tissue. This is especially well marked in some instances immediately beneath the mucous layer. Here may be seen a deep zone of dense fibroid infiltration, from which broad and narrow strands of fibres proceed inwards between the muscular bundles. This fibroid tissue is of recent formation, and consequently contracts in the course of its development and maturity, and in doing so draws the apex

of the tongue backwards and corrugates the general surface; hence its often shrunken, diminutive, and deformed condition. For the same reason the vessels are compressed and their channels narrowed, and the nutrition of the tissues impaired.

With the development of adventitious growth and the diminished blood supply, the muscular structure disappears, and the divided surface presents a pale, fibrous aspect. Large dense and cheese-like masses are scattered through the substance of the tongue.

I have designated these *fungus nodules*, to distinguish them from certain white and yellow miliary granules, which I propose to distinguish as *fungus nests*.

*Fungus nodules*.—These consist of dense yellowish-white, firm, rounded neoplasms embedded in the substance of the muscle. By a retrograde process they are frequently resolved into caseous masses, capsulated by firm fibrous tissue, the circumference of which is lost in the surrounding muscle, to which it imparts a morbid density and firmness. The caseous centre varies in consistence in different nodules. In many it is cheesy, while in some it partakes of the character of mortar, in which case the capsule is of considerable thickness, and its contents are readily expressed as a somewhat firm, rounded, gritty mass; disintegrated fibrous tissue and atrophied and broken-down inflammatory elements make up the bulk of the caseous substance, in the centre of which the endophyte is embedded.

*Fungus nests*.—The fungus nests consist of white or yellowish opaque granules. In form they are round or ovoid, and vary in size from a pin's head to a small hempseed. Being sharply circumscribed, tough and firm in consistence, they are readily removed with a needle or picked out from their bed by the point of a knife. If now a section be made through to the centre a small quantity of milky-looking moist granular substance may be squeezed out of them. Microscopically examined, this matter is found to consist of a number of rounded or irregular bodies (actinomycetes), varying in different nests from 5 to 200, and in size from a lymph corpuscle or less to that of a ganglionic nerve-cell.

Some are simple and others globose. When viewed at different focal distances the surface of these peculiar organisms appears to be studded over with minute rounded glistening points, giving them the appearance of a mass of spores not unlike the sporangia of the common mould.

On the application of pressure to the covering-glass these characters become considerably modified. Now each mass is seen to have a transparent, highly refractive radiating cortex, with a crenated border, and a dull greyish-brown granular-looking centre.

The former consists of a number of minute rays closely packed together and having rounded free extremities, from which they gradually taper towards the latter. Pressure applied to the covering-glass does not overcome the cohesion by which the rays are held together, but they are readily separated by the lateral movement of one glass upon the other, when they are seen as club-shaped, transparent, highly refractive, structureless particles. The addition of acetic acid does not perceptibly alter the appearance of the organisms. Nitric and sulphuric acids cause copious effervescence, and resolve them into a transparent, homogeneous, amorphous mass. Besides endophytes the expressed substance also contains a large quantity of granular matter, some free nuclei, and a few disintegrating inflammatory corpuscles. The nest itself consists of condensed connective tissue of a low type, arranged in irregular concentric layers. A few free nuclei are scattered through it, as well as numerous minute granules. The lesions above described are common to the palate, cheeks, and soft tissues generally throughout the mouth, &c. They may be confined to one or extend throughout the whole.

(*To be continued.*)

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## CONTINUED PREVALENCE OF RABIES IN THE NORTH-WEST DISTRICT OF LONDON.

By the Same.

Between the 6th and 13th of November last no less than three instances of rabies were brought to my notice as occurring in the north-west district of London, and others of a recent date are recorded in this communication.

Mr. Davy, of St. John's Wood, Mr. Scott, of Hampstead, and Mr. Villar, of Harlesden, have each supplied me with a victim of this destructive malady for *post-mortem* examination, and Mr. Davy likewise sent me the body of a puppy about four months old, whose head and neck had been devoured by the dog referred to hereafter.

The lesions observed in these cases were uniform in seat and character, and such as are usually present in the disease.

In all, the stomach was devoid of food, but contained a miscellaneous collection of straw, fibres of cocoa matting, wood, hair, and fragments of cane. The mucous layer was uniformly hyperæmic, in some parts swollen and œdematous, in others infiltrated with blood, and more or less disintegrated. The lining membrane of the pharynx and larynx was highly congested and covered with a thick tenacious mucus; the follicles of the former

were filled with the same secretion in an inspissated condition. Besides these lesions in Mr. Villar's case several of the incisor teeth were absent and the gums considerably lacerated.

Mr. Davy writes as follows:

Dear Sir,—The dead dog which I brought to you yesterday for examination was the property of a gentleman in St. John's Wood. He was first noticed to be strange in his habits last Monday, on which day he was seen to be fighting desperately with another dog. The next day (Tuesday) the servants in the house observed a slyness in his ways, and on the following morning they found the puppy, which I have also sent you, with its head and neck completely severed from the trunk. Notwithstanding this there was scarcely any signs of blood about the place. On Thursday morning they found the owner's cat dead, it having its jaw and two legs broken, but no portion of it had been eaten, as was the case with the puppy the morning previously. During the night the dog had also torn to pieces the cane work of an easy chair, and partly also a rocking-horse, as well as his plated collar, which he had slipped. I was requested to see him, and, recognising the usual symptoms of rabies, I ordered him to be destroyed. He was at all times a pugnacious brute, and had been under my treatment on account of wounds and bites on several occasions during the past five years. This is the fifth or sixth case of rabies which has occurred in my practice since February last.

I am, faithfully yours,

Professor Axe. E. M. Davy.

The following communication has been received from Mr. Villar, veterinary surgeon, Harlesden:

Dear Sir,—The little terrier whose carcase you examined was destroyed on the 13th inst., previous to which he had shown considerable dulness and inappetence for two days. The preceding night he had made several holes in a door-mat, and had also barked a good deal. When I saw him his back was arched and belly tucked up, his hair was up-standing like a dog when cold. His conjunctival membrane was much injected; he had recently lost some of his incisor teeth and others were hanging to the gum; he was very restless, but recognised his name and master, at whose face, however, he snapped when picked up. He had the characteristic howl of rabies, ate a large hole in a hamper, and attempted to worry everything put near him. He was severely bitten five months ago by a neighbour's dog, which is now alive and well; he has also had bites before and since that time. In April last I had two cases of rabies at

one house. The second, which I saw eight days after destroying the first, had paralysis of the lower lower jaw and partial paralysis of the hind extremities; the dog was unable to swallow, and showed no tendency to injure anything, but, like the other dog, howled considerably. Neither of these animals were known to have been bitten. In May I had another case in an Irish terrier; he had been fighting with a strange dog a few weeks before. In this case paralysis of the lower jaw was very marked; there was also a want of control over the limbs, and he moved with difficulty. This dog did not howl. Several dogs who associated with him were destroyed, and among them a collie whose manner had been noticed to be peculiar for several days.

I am,

Yours respectfully,

Prof. Axe. Sydney Villar.

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## ON THE PRESENCE OF ŒSTRIDEAN AND MUSCIDEAN LARVÆ IN THE HUMAN BODY.

By Dr. Jacobs. (Translated, with Footnote References and Remarks, by Professor Cobbold, M.D., F.R.S.*

After the labours of Professor Joly, of Toulouse, and of the veterinary *savant*, Bracy Clark, on this question, and in accordance with the manner of its exposition in the *Zoologie Médicale* of Gervais and Van Beneden, there is little to be added to this subject. An essay presented at Paris by Monsieur Pruvot, and defended under the presidency of Professor Laboulbène, enables us to indicate some new facts and to establish the entomological position.

It was during the last century that the travellers who visited

* This memoir ('De la présence des larves d'Œstrides et de Muscides dans le corps de l'homme'), of which only a small portion is given in our present issue, was communicated to the Société Entomologique de Belgique on the 4th of November last. It is published in their 'Comptes-Rendus des Séances,' série iii, No. 25, p. 150. It affords an admirable *résumé* of an exceedingly intricate and obscure subject. Dr. Jacobs is President of the Belgian Entomological Society, which is a very active body, and comprises many well-known naturalists. As Dr. Jacobs makes constant allusion to the bots of cattle and other animals, that fact taken by itself is a sufficient justification for the publication of his remarks in this Journal. The honoured name of Bracy Clark (always spelled Clarck in the Belgian paper) should excite our veterinary hippopathologists to further researches on a subject which has been too much neglected in this country of late years. The recent paper by Mr. D. S. Brown (*The Veterinary Journal* for July, 1877) does not add anything material to the facts already known, neither does it show any acquaintance with the masterly work of Brauer ('Monographie der Œstriden,' Wien, 1863).—T.S.C.

Central America, saw either beneath the skin or within the nostrils, larvæ of insects comparable to those of the Œstrus. They sometimes occasioned grave symptoms.

In 1753 Arture, physician to the king at Cayenne, communicated to the Academy of Sciences at Paris the fact that in South America impoverished or thinly clad persons were affected with swellings, caused by the presence of worms similar to those which live under the skin of animals before they become transformed into flies. These worms are called *ver macaque, ver maringouin, fluglacuru,* or *berne,* and *ver Moyocuil.*

Mons. Humboldt affirms that at New Granada the men support Œstrids. The Indians often had the abdomen covered by little tumours due to the presence of the Œstrus larvæ. That indication is reported by Latreille. Several authors have given to these parasites the name of Œstrus. This opinion is not generally accepted, and a naturalist—M. Brauer—denies their presence in man, holding that these larvæ proved to belong to the *Muscidæ.*

In 1823 the larva of the Œstrus in the human species was demonstrated in a positive manner. Observations of this kind were reported from larvæ removed from tumours developed beneath the skin of Europeans in the warm regions of the globe, the first at Guyana, the two others at La Trinité. The description is that of *ver macaque* of Coquerel. The perfect insect has not been discovered, but Guyon in 1836, demonstrated that his worm is the larva of an Œstrus.

These incomplete notions, combined with the testimonies supplied by persons little acquainted with dipterology, such as La Condamine, the Father Simon, Barrère, the physician Arture, and Latham, were represented by Mons. Isidore Geoffroy St.-Hilaire, as stating that the presence of Œstridean larvæ in man was not proven. An exception was made from the case reported by Say, of Philadelphia, who has figured a larva very analogous to that of Œstrus, but not resembling any known species. It had been removed by Dr. Brick from a tumour of the limb in which it was contained.

Almost at the same time two other cases were communicated by Howship to the Royal Society of London. The Œstrus in one case located itself on the back, in the other on the scrotum.

Monsieur Percheron has notified a case observed at Pérou.

In 1827, at Mariquita, in Columbia, Roulin extracted a larva, whose resemblance was identical to those that are found in abundance in the skin of cattle, principally on both sides of the neck and shoulders. The incised tumour was inflammatory and situated on the scrotum.

Again, one attributes to Roulin the finding of an Œstrus larva

on the hairy part of a man (*sur le cuir chevelu*). The fact occurred in the same region of the globe.

Under the name of *Œstrus Guildingii*, Hope has inscribed a similar parasite found on the head of a man at the Isle of La Trinité.

Dr. Dabreu has given details of analogous larvæ observed in Brazil, in the province of Minas Geraës. Mons. von Siebold has reproduced them in Wagner's Dictionary. In that Brazilian province they call the larvæ which attacks man *berne*. It is at the same time common on the ox.

In 1833 M. Guérin-Meneville published a notice relative to the Œstrus larva found at Martinique on a negro attacked with smallpox. Of this parasite, the surgeon of the Basseuil Marine had also reported examples in France. Guérin remarked that the larvæ possessed the character of stomach-bots (*gastricoles*), without being identical with those figured by Bracy Clark.

(*To be continued.*)

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## ON PLANTS IN RELATION TO ANIMALS.

By Professor James Buckman, F.G.S., F.L.S., &c.

(*Continued from* vol. lv, p. 863.)

### The UMBELLIFERÆ—Umbel Bearers—

Now claim our attention. They are readily distinguished by the umbellate arrangement of their stems, which sometimes consist of *simple* umbels, that is, flower stems start from a kind of boss or spoke, and appear somewhat like the spokes of an umbrella upside down, or the umbels may be compound, in which case the umbels are again made to produce a secondary arrangement of stems by forming a compound umbel, which branches forth again for the attachment, first of the flowers and afterwards of the seeds.

The stems of these plants are for the most part composed of hollow tubes, separated into various lengths by a solid node, from the upper part of which springs the usually expanded base of the petiole.

The *leaves* are for the most part pinnatifid, either simply so or bipinnatifid, tripinnatifid, or very variously cut and decompounded.

The *flowers* have five petals at the apex of a peculiar seed or fruit; these petals are sometimes equal, at others very unequal, so that the umbels have a kind of rayed appearance.

The *seeds* are very variable; they consist of two carpels divided

by a commissure, the length of which and of the beaks gives either a short or long aspect to the seeding parts, and these again are flattened or rounded, smooth or armed with prickles, so that although the seeds themselves are made upon a very general plan, the differences observable in the development of different parts causes not only a great variation in the appearance and properties of the different plants of this highly important natural order.

That it is important may be gathered from the fact that we have bordering on forty native genera, with somewhere about seventy species, and these afford plants so different in form, qualities, and uses, that the order can only be esteemed as one of very great utility, the properties of which have been shortly described by Sir J. Hooker as follows:

"1. Poisonous, acrid watery sap, in *Œnthusa, Conium, Cicuta, Œnanthe.*

"2. Esculent in *Angelica, Samphire, Parsley, Celery,* &c.

"3. Sugar and Starch abound in *Parsnip* and *Carrots*—Pignut.

"4. Milky Fetid Resins in stems of *Assafœtida, Galbanum,* &c.

"5. Essential Oils in the fruit of *Dill, Caraway, Coriander, Anise,*" &c.*

The following notes upon the order, on account of the simply popular tone, are taken from Sowerby's 'Useful Plants of Great Britain':

"UMBELLIFERÆ.

"This extensive natural order, which contains a large number of British species, is remarkable for the many deleterious plants included in it, and as most of the natural ones present a great similarity of aspect they are unusually liable to be taken for each other. While the carrot, parsnip, and many others of our most wholesome vegetables are members of this family, it likewise includes the hemlock, water-hemlock, fool's parsley, and numerous other poisonous plants, so that particular caution is necessary with those unacquainted with scientific botany in eating or gathering any of the group.

"Most British Umbellifers have their flowers arranged in the form technically called an umbel, being placed upon small stalks arising from the summit of a common stem, like the spokes of an inverted umbrella, these secondary umbels, as they are termed, being supported on stalks springing from the top of the main stem in the same manner, and forming the primary umbel. The

* The 'Student's Flora,' p. 149.

leaves are frequently finely divided or pinnated, like those of the cow-parsley, but in some are simply pinnate, and a few have entire or undivided leaves. The fruit when ripe separates into two one-seeded divisions, which are attached to a central stalk-like axis, frequently splitting into two when the seed is ready to fall; it is generally marked with various ridges and furrows, which, with certain small channels between them, furnish the botanist in many cases with the principal distinctive characters of the genera."*

We shall now comment upon the following poisonous species of the order, namely:

1. *Œnanthe crocata* . Hemlock, Water Dropwort.
2. *Cicuta virosa* . . Water Hemlock, Cowbane.
3. *Helioscyadium* . Procumbent Water Parsnip, Fool's Watercress.
4. *Æthusa synapium* . Fool's Parsley.
5. *Conium maculatum* . Common Hemlock, Herb Bennet.
6. *Apium graveolens* . Wild Celery, Smallage.

1. *Hemlock, Water Dropwort,* has somewhat the appearance of celery, but its foliage is much darker in colour, and it never possesses that appetising flavour in any of its parts which belongs to celery.

It is very common in some of our ditches and water-courses, and whenever it grows it requires one to be extra cautious as to allowing cattle to stray near it, and more especially if they have for some time lived in straitened circumstances.

We were once threatened with an action from a neighbour, who contended that his cattle had got through our hedge and been surfeited with our clover; but as we traced the beasts a mile away from the clover by the road side eating the dropwort, from which they died, the evidence was pretty clear upon the point. It was afterwards shown that our neighbour had broken down the fence to admit the beasts to the clover, but they strayed still further, and ultimately died by the side of the ditches in which was the water-dropwort, of which Mrs. Lankester says:

"This is one of the most poisonous of our native plants. It somewhat resembles celery in its general appearance, and has been mistaken for that esculent with terrible results. Possibly none of our native plants has been the cause of fatal accidents so frequently as this. The utmost caution is therefore necessary in observing the distinctive characters of wild plants before partaking of them; and this can scarcely be secured without that cultivation of the observing faculties which some knowledge of botany necessitates, and which is best effected during the early

* 'Useful Plants of Great Britain,' p. 110-11.

years of education. The authenticated instances of poisoning from the use of this plant are very numerous. During the last war with France some French prisoners, who were allowed to walk about Pembroke, dug up a quantity of this plant, mistaking it for celery, and ate the leaves with their bread and butter, and likewise some of the roots. Two of them died shortly afterwards, and the rest were seriously ill from the effects of the poison. Sir William Watson relates a case of eight young lads near Clonmel, in Ireland, mistaking its roots for those of the water-parsnip, and eating them, in consequence of which five of them died. Mr. Miller informed the same author that a whole family at Battersea were poisoned by it. So virulent are the properties of this plant that its scent is said to produce giddiness; yet it has been continually used in medicine. In Westmoreland the country people apply a poultice to the ulcer which sometimes forms in the hoof of horned cattle. Externally it may be safely applied, but internally it is decidedly a dangerous remedy.

"Watson records that in 1758 four spoonfuls of the juice occasioned the death of a person at Havant, in Hampshire. Dr. Pulteney observes that in this instance, as well as in all cases which he has observed, the sufferer is affected with locked-jaw. In some parts of France it is used to destroy moles. In Pembrokeshire, where it grows extensively, it is known as the 'five-fingered root.' The best remedy for its effects on the human constitution is a speedy emetic."*

2. *Water Hemlock*, or Cowbane, the latter a name of ill omen, is a most poisonous plant, and one that was supposed to have been formerly used by the Greeks for judicial poisoning. It is very poisonous to cattle that partake of it, and hence it should be sedulously removed from pools. It is, however, sometimes used, both for man and the lower animals, as an anodyne poultice in painful swellings.

3. The *Water-Parsnip* is a very common plant in wet places, especially in such situations in which water-cress delights to grow, on which account it should be sedulously weeded out from places where water-cress is grown for market.

This plant is usually esteemed to belong to the poisonous section of the umbellate plants, but Dr. Withering is stated to have used large doses of its juice in skin diseases with good effect; but as it is doubtfully wholesome it is well to know, as stated by Mrs. Lankester, that "a little knowledge and care will prevent any mistake being made, if it be remembered that the leaves of the Umbelliferæ, to which the objectionable plant belongs, always sheath at their base."

4. *Fool's Parsley* is a common weed in our fields and gardens.

* Sowerby's 'English Botany,' vol. iv, p. 129-30.

It has doubtless got the name of fool's parsley from the fact that careless people mistake it for the true parsley; however, it is fortunate that this is seldom done except in search of rabbit food, but whenever so mistaken it is very shortly fatal.

It can readily be distinguished from parsley by the darker foliage and the presence of three involucral leaves, which hang down from the outside of each floral umbel. Any mistake, in as far as cultivation is concerned, can easily be prevented in cultivation by growing only the extra-curled strains of parsley for garnishing and culinary purposes; many are so perfect as now grown.

5. *Hemlock.*—It is so well known that little description will be necessary. Its smooth dark green leaves and stems, which are more or less spotted with dark-red blotches, will distinguish it from all its British congeners, as it is our only smooth-stemmed Umbellifer so spotted. When bruised the whole plant emits a heavy somniferous smell.

Hemlock is a very powerful poison, so that it is dangerous to let it grow about, as many accidents have arisen from its use. Gerarde says of it: "Homlock is a very evill, dangerous, hurtful, and poysonous herbe, insomuch that whosoever taketh of it into his body dieth remedilesse, except the party drink some wine that is naturally hot, before the venom hath taken the heart, as Pliny saith; but being drunke with wine the poison is with greater speed carried to the heart, by reason whereof it killeth presently; therefore not to be applied outwardly, much lesse taken inwardly into the body."

As a medicine hemlock has been held in high repute for a long time. It is admitted into all Pharmacopœias, including the veterinary one, but great care should be exercised in its exhibition, though at the same time it is stated that in Russia the plant is cultivated and blanched, after the manner of celery with us, and eaten in the same manner. This naturally introduces us to

6. *The Celery.*—Though well known to contain the poisonous principles of so many of the order, as the green tops of the leaves have been known to kill rabbits, and we have heard of disagreeable consequences following the eating of stewed celery when not in a perfectly blanched condition.

These two last herbs show us distinctly how the art of the gardener is capable of transforming highly poisonous plants into wholesome and nutritious diet. At the same time, with regard to celery, much as it is partaken of, there is reason to believe that it is not always easy of digestion, but whether this is from a less perfect mode of cultivation, or from partaking of the young leaves—which from experience we have found are best to be avoided—is a matter of uncertainty.

## ADDITIONAL REMARKS ON ANTHRAX.

By W. A. and H. Edgar, M.R.C.V.S., Dartford.

We publish the following *post-mortem* notes, &c., as a sequel to our paper on the above disease, reported in the November issue of this Journal.

On the 12th December we were requested to visit the marsh before described, to make a *post-mortem* examination of another cow found dead at 7 a.m. by the shepherd, which had been left by him, with a number of other cows, on the previous evening apparently healthy. These cows had to this date been in the field six weeks, *i. e.* they were a *fresh* lot brought in, and followed the others into the marsh a fortnight after the previous death. About the end of November a cow was found dead in the ditch, and as it was supposed she had been drowned no inquiry was made, although it appears there was no evidence, as is usually the case, of the animal having made severe struggles in the mud to extricate herself; therefore there can only be a suspicion as to the actual cause of death.

The animal was lying on the right side (a puncture had been made into the rumen, through which had escaped a quantity of ingesta; the shepherd also attempted to draw blood from the carcase, but only a few ounces of blood escaped, which was very dark, and did not coagulate); the under surface of body was still warm; rigor mortis was not marked; the conjunctival, Schneiderian, buccal, vaginal, and rectal mucous membranes were intensely congested; the three latter being almost black; frothy mucus was issuing from both nostrils; partial defæcation had taken place, the fæces being firm; a slight flow of mucus from the vagina also existed (the animal was in the eighth month of pregnancy). In dissecting the skin from the abdominal walls large patches of extravasated tarry blood were encountered; all the subcutaneous veins were charged with a like coloured fluid; several ounces of dark serum escaped from the abdominal cavity; no ecchymoses were noted in peritoneum; the stomach and intestines contained a large quantity of food in various stages of digestion; mucous membrane of rumen, reticulum, and omasum, was in a decidual condition, while that of the abomasum was much congested; spleen double the normal size, margins rounded; kidneys congested; uterus normal, containing a well-developed fœtus; little serum in thorax; extensive blood extravasation in costal pleuræ; lungs not much congested, but contained many hæmorrhagic patches in subpleural tissue; trachea and bronchi

were full of bloody mucus, while the ecchymoses in mucous membrane were so extensive as to present an almost uniform blackened condition; parietal pericardium, except at base, normal; ecchymoses in right auricular pericardium; heart, somewhat flabby, contained a quantity of liquid tarry blood; ecchymoses in left ventricle, almost covered muscular walls; none in right heart, valves healthy; microscopical examination of blood from lungs, liver, and spleen revealed the presence of enormous numbers of anthrax bacilli and spores, some of the rods from the warm spleen pulp being in a state of scissiparity.

This death, occurring two months after the first case, shows the improbability of any sanitary measures rendering the pasture safe, although two facts may be mentioned which may have some bearing on the second case, or it may be that the bacilli or spores now exist in the soil or worm-earth on the marsh. The whole of the ditch-bed mud was not removed and burned nor buried as advised; secondly, the marshes were unfortunately flooded about a month ago; the ditch mud, &c., was consequently thoroughly washed over them. We have now advised the owner to have the marshes ploughed up and cultivated for a year or two, as he does not care to incur the risk of grazing valuable stock upon them.

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## RUPTURE OF THE COATS OF THE RECTUM OF A MARE IN THE ACT OF COITION.

By Richard Hudson, M.R.C.V.S., Retford.

I hold the opinion that somewhat rare cases, such as the following, should now and again be reported, not on account of any special treatment which may be adopted, or because an apparently hopeless case may ultimately be pulled through and recover. Without doubt veterinary surgeons have more or less to do with men or their masters who travel over the country with entire horses during the spring months, and could give them good practical advice relative to the proper performance of their duties, and often thus save an animal a great amount of torture, and prevent the loss probably of some valuable brood mares.

Case.—In the afternoon of Saturday, the 18th June last, I was requested to see a pony-mare, seven or eight years old, belonging to Mr. Thos. Williamson, a fruiterer, of this place. I was at the time on my way home to put up some medicine to send by a carrier into the country, and therefore could not then give all

the attention to the case which it required. I found the mare to be suffering very severe pain, and although restless she did not attempt to lie down or roll. What struck me as being most important was the peculiar weak, sinking pulse, associated with a sweat-bedewed and cold surface of the body and extremities.

On inquiry, the groom informed me that the mare had been "served" an hour or two before by GARIBALDI, an entire horse between twenty and thirty years old, which was considered a sure foal getter; yet to my knowledge he must have been used over twenty years, as I remember him—a narrow, lanky two-year old—as being shown the first season. In this case it unfortunately happened that the entry was per rectum.

I took the man home with me, and sent two doses of diffusible stimulants, and asked my son to go and examine the mare (this was at 5 or 6 p.m.). A short distance within rectum he met with an accumulation of fæces, which he removed. The examination also disclosed the fact that the muscular coat and mucous lining were torn, thus producing a sacculated condition of the bowel. The peritoneal coat was, however, intact.

At 10 p.m. she had given to her an anodyne mixture combined with an aperient.

June 19th.—I saw the case with my son both morning and evening. In the morning she took some sedative medicine, and a little more aperient at night.

20th and 21st.—Sedatives and alteratives were administered.

22nd.—It was found necessary to give some more aperient medicine, as she had not passed any fæces. At night my son again carefully examined her, and ascertained that the parts were in a satisfactory condition.

From this time to July 2nd the treatment varied somewhat according to circumstances; on that day another mild aperient was given, and the mare again examined, when it was found that the passage was much contracted.

July 3rd.—As no fæculent matter had been passed since the 29th ult., some more aperient medicine given.

5th.—Her pulse, which rallied after the first severe shock, now became weaker, and though she had never been free from abdominal pain, it was now so much more severe that we thought there was little chance of the animal's recovery. She was now groaning and scraping the litter incessantly, and as continuously changing her position, never, indeed, being quiet. Besides this, not a particle of dung had been passed for over a week, and only at times a very little flatus.

On July 8th an examination showed that the gut in healing had become so much contracted in one part as to indicate its misplacement and the existence of a stricture. My son ventured to

overcome this obstruction by a careful introduction of his hand, when a quantity of fæcal matters was cleared away. She took some more aperient and sedative medicine. On being seen at night it was found that she had passed some fæces naturally, and was also much freer from pain.

10th.—Patient progressing favorably.

14th.—The mare now dungs freely and takes more food. The owner was directed to allow her to roam in a meadow and pick some grass. Her recovery from this time was continuous.

On Nov. 14th I saw her at work drawing some furniture; she was in low condition, but she ate and continued to gain strength.

I have only seen one similar case previously, which was about forty years ago. The owner of the mare came and said that "she wanted a passage." I went to see her at a small inn in West Bar, Sheffield, being then on a visit to my brother, a druggist. She was a thick, strong cart mare. The pain was not acute, but as she had not passed any dung I introduced my hand, and discovered that the rectum was completely ruptured. I told the owner that the horse had killed his mare, but he would not believe it, and it was not until the next day, when she died, that he was convinced.

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## AN ELASTIC VETERINARY TOURNIQUET.

By A. Metherell, M.R.C.V.S., Brighton.

I desire to commend to the notice of those members of the profession who frequently perform neurotomy, tenotomy, &c., the above appliance, which I do not find named in veterinary instrument catalogues. In principle it is not new to the medical profession, though dissimilar in its most essential detail.

So simple is its construction that it can scarcely be called a surgical instrument, consisting merely of eighteen inches of solid small india-rubber rope, half an inch in diameter, known to the trade as "round cord," a hook and thimble being firmly attached at opposite ends.

The *modus operandi* is to wind this ligature as tightly as possible three or four times round the limb, above or below the knee or hock. No sponging is required in most cases, and in none more than the operator would prefer doing. Should an artery be severed, no inconvenience would arise.

The merits of this compress are its complete efficacy, its extreme simplicity, and cheapness. I am unacquainted with the one devised by Mr. Field, and supplied by Messrs. Arnold at

fifteen shillings, but trust that eminent firm will be able to afford this one at less than half that sum. It costs me two shillings, and is practically indestructible; but of course it lacks Arnold's finish.

In these days of depression in general and agriculture in particular, most veterinary surgeons will welcome an inexpensive and efficient instrument.

## ABSCESS IN THE HEART.

By John H. Loft, V.S., Grimsby.

On December, 2nd, 1882, I was sent for to attend a heifer about three years old.

The owner informed me that she had been in his possession six months, that she had eaten well up to the morning of the 2nd, and had given her usual quantity of milk, which was not over one gallon per meal; she was housed during the nights and turned into a pasture during the days. At the present time the pasture was under water; nevertheless the heifer was turned into it, and was observed on the morning of the 1st to lie in the water for a length of time.

On my arrival the heifer was breathing very heavily. The pulse was 98, very weak and wiry; temperature 101°; extremities cold. Upon auscultating the chest I came to the opinion that she was suffering from inflammation of the lungs, and treated her accordingly. I also clothed her and blistered both sides of the chest.

During the night of December 3rd she had been on her legs, and had eaten a little warm mash and a little hay. She had not drank, and no milk could be obtained. The pulse was very quick and weak. Temperature two degrees higher than on the previous day; breathing less, 35 per minute; extremities still cold; excreta moist; urine scanty.

On December 4th, 7 o'clock a.m., the heifer was unable to rise, and the extremities were as cold as death; she had eaten nothing. The pulse was 100, very weak indeed, and irregular; temperature 106°; breathing 38. There was continual grunting.

The heifer being nearly fat, not in calf, nor full profit in milk, I was not surprised at the owner deciding to have her killed as soon as possible.

On *post-mortem* examination I was very much surprised to find the lungs very little congested, the principal lesion being in the heart, which organ was simply riddled through both ventricles by five or six distinct abscesses, which had burst and allowed the

pus to mingle with the blood, and which could be traced easily in the lungs.

I forward the particulars of this case as I never saw such a one before, and because I hope some of your many readers may have and can give me some information on the subject, such as—is it a rare case? As a rule, is it easy to distinguish between an affection of the heart and an affection of the lungs, supposing slight congestion of the lungs to be present? Also, if it is at all common in neat cattle to eat and yield milk up to within forty-eight hours of death with such an affection, or if I am right in thinking that the heifer's death was due to a severe cold bringing the heart disease to a crisis? or, lastly, is it possible the heifer would have recovered from her heart disease had she not been used so imprudently as to have been turned upon a flooded pasture, or otherwise exposed to cold?

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## BOVINE MEDICINE.

By a "STUDENT."

SIR,—Will you allow me as a veterinary student to make a few remarks on a recent publication which has been offered to us as a text-book on cattle pathology, and against which, seeing that it is utterly unfit for the position claimed for it, I consider we have a grievance. I refer to Hill's 'Bovine Medicine and Surgery.' About Mr. Hill's manner of writing it would, perhaps, be unbecoming in me to speak, yet I cannot help pointing out that such a crude and involved style as is evidenced by the following quotations is hard to parallel in any work claiming to be a scientific treatise.

Page 264.—"Treatment, if adopted, would, if arising from inflammatory action, be antiphlogistic."

Page 427.—"If custom is to decide such cases it is but of little use having a Society for the Prevention of Cruelty to Animals—a society whose aim it is to protect from unmerciful hands some of the noblest works of creation, and one which England has justly cause to be proud of."

Page 594 (speaking of torsion in castration).—"The testicle being exposed and the cord and vessels embraced in the steel clams, *the latter* are grasped in the torsion forceps and maintained with a screw."

These three quotations, which were taken at random, require, I think, no comment. The author speaks of his experience in morbid anatomy, and inferentially of his capabilities as an anato-

mist and comparative anatomist. I shall endeavour to show that if a student at the examination table displayed such a lack of knowledge of these subjects as is indicated in the volume under consideration, he would most assuredly be relegated to his studies for further instruction. First, then, with regard to morbid anatomy, on page 21 we read that in the third stage in pneumonia "suppuration commences—in other words, the lung structure breaks down." I have been taught that in this stage instead of the lung structure breaking down the exudate breaks up.

Page 23 contains the extraordinary announcement that contagious pleuro-pneumonia is a subacute disease having its *location* in the interlobular exudation of lymph.

Opposite page 32 is a plate to show the lesion in pleuro-pneumonia. A wedge-shaped piece of lung is represented, and in the thickened interlobular tissue are scattered objects (like red corpuscles), the meaning of which I hope is quite evident to other readers; to me, I confess, they convey no idea, and there is no explanation offered in the text. This plate and some others in the book are marked "original," which, I take it, is quite an unnecessary care.

Here is a unique sentence from page 33 (still alluding to pleuro-pneumonia): "Bands of white fibrin of various degrees stretch in every direction; in other words, there is interlobular exudation or effusion of albumen or fibrin separated from the colouring matter of the blood into the connective areolar tissue of the pulmonary lobules, which are themselves compressed or hepatized."

The 205th page states that, "Determination of blood to a part results in stagnation or gathering together of the corpuscles." Certainly the *affluxus sanguinis*, or determination of blood, may lead to stasis if it be followed by inflammation, but I hope that this "determination" is not always attended by such serious consequences, or alas! for beauty's blush.

On page 250 we are informed that to examine urine for albumen we are to use the microscope, and to observe "cylindrical or tube-like bodies (coagulated albumen)," the following necessary caution being added: "At the same time, in examining urine for the presence of albumen, it must be borne in mind that its discovery and apparent quantity will depend upon existing circumstances." Quite so.

On page 281 the urine is said to be of a "high temperature in gonorrhœa." Perhaps the most extraordinary statement in this extraordinary book occurs on page 408, where the author says that a medical man—a friend of his—had expressed the opinion that "there was no such thing as milk fever; that the

disease so termed was caused by a small portion of placental membrane being conveyed through the circulation and *deposited on* the brain." The author adds that "this theory, however, has not been practically demonstrated."

On page 464, and again on page 465, in describing the symptoms of ophthalmia, it is stated that the "cornea is traversed with engorged blood-vessels." This in a non-vascular structure is, to say the least of it, remarkable.

I was unaware, till I read it on page 554, that the ox was susceptible of inoculation by the glanders poison, and that when the disease was contracted by the large ruminant, symptoms were presented similar to those seen in the horse.

Pus, on page 554, is explained to be "a quantity of matter, the result of dead, disintegrated, and dissolved textures."

In a lucid arrangement of tumours, which appears on page 557, sarcomata are classed as non-malignant growths. Perhaps I have said enough to indicate what "my experience of morbid anatomy" warrants the author in putting in a work designed as a text-book for the veterinary profession.

A few quotations having reference to the knowledge of anatomy displayed, and I have done:

Chapter III commences with a description of the ox's heart, and a view is given of that organ, with the principal vessels, and in spite of the fact that the anterior aorta is absent in the ox, we have a large one present in the drawing.

On page 119 we read that among others the "arteries most frequently injured are the metacarpal branches of the femoral or gluteal and the metatarsal."

The vulva of the cow is described on page 321 as having "a superior commissure, which is very acute, and an inferior commissure, which is more rounded and obtuse; it lodges the clitoris."

The haw, it is explained on page 472, is a "fold of membrane." Most people are aware that its composition is fibro-cartilage, covered by the conjunctiva. In another place the haw is said to be extravasated and the conjunctiva injected.

On page 505 a very funny mistake occurs. A drawing of the hind quarters of a calf is taken from Cobbold. In the original a muscle, which from its attachments can be no other than the triceps abductor femoris, is called by mistake the vastus externus. Our author has copied drawing, mistake and all; the muscle is vastus externus still.

A description of mumps appears on page 562, and the statement is made that the disease "consists of inflammation of the parotid gland, the salivary glands being frequently involved."

I wonder what the author considers the function of the parotid to be.

Considering how little original matter is contained in this volume (out of 26½ pages on pleuro-pneumonia, for instance, about 21 are copied from other authors), I think the inaccuracies, not to say egregious blunders, of which the author has been guilty, render this treatise quite unworthy of our support; and indeed its perusal might make us regret that such a volume could emanate from a Fellow of the Royal College of Veterinary Surgeons. I am, yours, &c.

Edinburgh; *Dec.* 11, 1882.

*To the Editors of the 'Veterinarian.'*

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## Pathological Contributions.

### CATTLE PLAGUE.

This disease is reported to be still existing in the vicinity of Taganrog, in the Province of Ekaterinoslav, in Russia; 113 animals have died, 55 have recovered, and 8 were still affected. It has also been reported in the Provinces of Bessarabia, Volhynia, Kherson, and Podolia.

An outbreak has also been reported in the village of Ali Pacha, in the district of Silivria, in Turkey in Europe, and 200 cattle have succumbed to the disease.

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### PLEURO-PNEUMONIA.

Cases of this disease have been reported in the county of Baltimore, in the United States, and several cases of chronic pleuro-pneumonia have been detected in the dairy districts of the same county. The disease has also been reported in the canton of Argovie, in Switzerland.

In Great Britain the number of outbreaks has decreased during the four weeks ending November 25th from 44 in 1881 to 34 in 1882, and the number of cattle attacked from 122 in 1881 to 81 in 1882.

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### FOOT-AND-MOUTH DISEASE.

Information has lately been received from Chili, in South

America, of an extensive outbreak of this disease in that state, in which many hundreds of cattle have become affected. The disease is supposed to have been introduced by cattle imported from the Argentine Confederation.

In consequence of the spreading of this disease in the eastern counties, sales and markets, except for the sale of fat stock, have been suspended by order of the Privy Council in the following counties and the borough therein, viz. Norfolk, Suffolk, Essex, Hertfordshire, Bedfordshire, Cambridgeshire, and the Isle of Ely, Northamptonshire, Huntingdon, Soke of Peterborough.

## SWINE FEVER.

This disease is still very prevalent in this country, and the returns show a considerable increase during the four weeks ending November 25th compared with the corresponding period of last two years. In 1881 the number of outbreaks were 125, this year they are 242; in 1881 the number of swine reported attacked was 708, this year they amount to 1294, of which 218 died.

## Facts and Observations.

Rabies.—Mad dogs have appeared at Newbridge-on-Wye, Radnorshire, and three dogs have been destroyed there. The chief constable, by order of the magistrates, has caused a notice to be widely circulated in Rhayader Petty Sessional Division, calling on the inhabitants not to allow their dogs to be at large beyond their premises unless muzzled, and under the personal control of some responsible person. The magistrates at Knighton have renewed the order made in September. The magistrates at Kington have held a meeting, and applied a similar order extending to all parts of the division lying on the south or right side of the River Arrow. There has been a very serious outbreak of the malady at Whitton, though it is not known whether any other dogs have been bitten. The magistrates are taking every precaution to prevent the spread of the disease.—*Standard.*

Lusus Naturæ.—A correspondent informs us that on November 17th, 1882, Mr. John Blackhurst, V.S., Broughton, attended a heifer in parturition at Mr. Hartley's, Ashton, near Preston, and after much difficulty succeeded in delivering her of a *lusus naturæ* having two bodies intact, each being furnished with a head. Besides this it had six legs, four of which were similar to fore extremities, and two tails upon one of the bodies. It was necessary for the purpose of saving the life of the heifer, which is now doing well, to destroy the monster before delivery.

Grafting Skin from a Rabbit.—Dr. Lamallerée, of Paris, has recently successfully employed grafts from the skin of the rabbit to excite cicatrisation in the human subject (*Deutsche Med. Zeit.*, No. 40). The patient had suffered for six years from a varicose ulcer of the leg, which had resisted all sorts of treatment. Six bits of skin from the belly (previously shaved) of a rabbit, and two from the skin of the human forearm, were grafted on the surface of the granulating ulcer, with the proper antiseptic precautions. At the end of eight days the pieces of skin from the rodent had taken root and were growing, those from the man had not. After eight days more an island of new skin was to be seen (ten centimètres long and seven wide) in the centre of the sore. The healing went on to complete cicatrisation, and the newly-formed epidermis evinced no trace of its lowly origin.—*Med. Times and Gazette.*

A Remedy for Corns.—Dr. Traill Green, in the *Phil. Med. Reporter*, commends from his own experience M. Gezou's remedy for corns, the formula for which is as follows:—Salicylic acid 30 parts, extract cannab. sat. 5 parts, collodion 100 parts. It is applied with a camel-hair pencil. In four or five days the corn comes off, and the patient should then take a warm foot-bath. A second application may be needed.—*New York Med. Record.*

Pilocarpin in Rabies.—Professor Nocard, of the Veterinary School, states, as the conclusions he has arrived at from the performance of many experiments on animals since 1878, that pilocarpin exerts no curative or prophylactic action in rabies, and that it does not produce in animals the subjects of rabies any attenuation of the crises which characterise the furious form of the disease.—*Journ. de Thérap.*

# THE VETERINARIAN, JANUARY, 1, 1883.

Ne quid falsi dicere audeat, ne quid veri non audeat.—CICERO.

## INTRAVENOUS INOCULATION WITH VIRUS OF PLEURO-PNEUMONIA.

THE record of experiments conducted by Professors Thiernesse and Degive, which we purpose publishing in our next number, is interesting in several particulars, and especially as regards the test inoculation into the subcutaneous tissues after the animals had recovered from the slight derangement which followed the injection of the fluid into the jugular vein.

In this connection we may call the attention of our readers to the circumstances which we reported in the *Veterinarian* for 1870. Injection into the jugular vein of the fluid exudate from the lungs of an ox which was the subject of the contagious lung plague, was performed for the purpose of testing the infective power of the virus, and the results were practically *nil.* Later on Dr. Sanderson and Mr. Duguid injected the fluid into the auricular veins and found that much less local irritation resulted than when the inoculation was performed in the ordinary way, and they recommended in consequence that the method of intravenous inoculation should on account of its superior safety be substituted for the usual plan of introducing the virus into the end of the tail.

As MM. Thiernesse and Degive do not refer to any of the experiments which we have quoted, it may be concluded that they have not seen the published accounts in the *Veterinarian* and the *Royal Agricultural Society's Journal;* in fact, the writers state that they were induced to commence the inquiry in consequence of M. Bouley's remarks on the difference in effect when the virus of symptomatic anthrax was introduced in the blood, or into the areolar tissue, the

lesions in the latter case generally proving mortal, while in the former very slight disturbance is caused.

It will be noticed that the protective influence of inoculation by the intravenous method is inferred by MM. Thiernesse and Degive from the fact that the animals thus treated are not so susceptible to the action of the virus when introduced into the areolar tissue. Dr. Sanderson went beyond this by exposing animals, after intravenous inoculation, to contact with living diseased animals without positive results; but the experiments were not numerous enough to permit any sweeping conclusion to be drawn from them. It is admitted by the advocates of inoculation that the protective effects are not constant nor certain, and it yet remains to be determined whether the new system of intravenous inoculation has a higher protective value than the old method of tail puncture.

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## Extracts from British and Foreign Journals.

### STATISTICS OF HYDATID DISEASE.

The following paper was read by Dr. Davies Thomas at the meeting of the Royal Society of South Australia on Tuesday, November 7th, 1882.

At our last meeting I gave a short account of the natural history of Echinococcus as far as our present knowledge extends. I then stated that what is known as the hydatid cyst is really the cystic or bladder-worm phase of development of a minute tapeworm which inhabits the upper part of the small intestine of the dog. I further described three varieties of the hydatid—viz. the Acephalocystic form, where no scolices or daughter cysts were found; the variety called *Echinococcus scoliciparíens*, where brood-capsules and scolices were present; and, finally, *Echinococcus altriciparíens*, where daughter cysts were developed. We saw, however, that there were good reasons for thinking that these forms did not mark distinct species, but merely variations of one species. Moreover, we considered the remarkable transmutations and transmigrations undergone during the complete life-cycle of this curious and, to us, very important parasite; for we learnt that the adult tapeworm inhabits in great numbers the small

intestine of the dog, in which animal the hydatid cyst has never been found; that the last joint, filled with ripe ova, passes from the intestine of the dog into the outer world; that the eggs are conveyed by the various external forces of nature into drinking water, and that they are scattered on grass and herbage. The next step was that the egg became swallowed by some herbivorous animal or by man, and then the eggshell became digested in the stomach, thus releasing the six-hooked boring embryo formerly enclosed within it. The embryo began at once to bore its way into the coats of the stomach until it reached the inside of a small blood-vessel. It was then caught in the current of blood, and was conveyed to the capillaries of the portal system within the liver; here the majority rested and developed into hydatids. Some of them, however, passed through the capillaries of the liver, and entered the general and pulmonary circulation. In this way it follows that any organ of the body may become the resting-place of an embryo, which proceeds to continue its development into a hydatid. We shall find from the statistics of the disease that the lungs, heart, brain, spleen, kidney, muscles, and bones are all liable to be attacked, although by no means in a like proportion. If we summarise the various phases of the life-cycle of Echinococcus we shall see that they are as follows:—The last joint of the adult tapeworm produces the egg. Inside the eggshell is developed the six-hooked embryo. This proceeds to change into a hydatid cyst. This, in turn, produces by a process of budding the Echinococci. The Echinococci, when transplanted into the small intestine of the dog, develop into the scolex. This now forms joints two or three in number, and the last one of these contains the ripe eggs. To such curious series of changes Steenstrup gave the name of "the alternation of generations." The tapeworm must be regarded as the adult complete animal, for it breeds the eggs. It must be noted, also, that the tapeworm stage is found in the small intestine of the dog. There the worm is found attached by its suckers and hooklets to the lining membrane of the bowel, and its food is the chyme of its host. The bladder-worm stage of Echinococcus does not occur in the dog. In the sheep and ox, however, the case is exactly the reverse, for they harbour the cystic form in the liver, lungs, and other organs; but they never have the little tapeworm in the bowels. The hydatid lives, not on chyme, but on fluids secreted by itself from the blood of its host. It is extremely important to remember that sheep and oxen get the hydatid and the dog the tapeworm. No one has ever seen this rule reversed

in the case of Echinococcus. Now, man, in his relation to Echinococcus, resembles the sheep and ox, and not the dog, for he gets the hydatid cyst but not the little tapeworm. The great practical fact is this—that if there were no dogs we should not get hydatid disease. Eating underdone mutton or beef can never give us hydatids, though it might give us certain kinds of tapeworms. The dog, however, would not get *Tænia echinococcus* if it did not swallow living scolices from hydatid cysts. Now, if all this be correct, we can see that the existence of a great many dogs, sheep, oxen, pigs, &c., in a country, produce favorable conditions for the propagation of hydatid disease in man in that country, for the greater the number of dogs the greater the number of hosts for the tapeworm form, and in like manner the greater the number of sheep, &c., the greater the number of hosts for the cystic form. If the sheep and the dogs were kept apart there would be no hydatids; the dog must eat the organs of the sheep containing the hydatids before he can breed the tapeworm, and in turn the sheep must swallow the eggs of the tapeworm or it would never get hydatids. Evidently then there are four chief factors which determine the spread of hydatid disease in any country:—1. The number of dogs in the country; 2. The opportunities that exist for enabling the eggs bred in the dog to be swallowed by the sheep; 3. The number of sheep, oxen, pigs, &c. 4. The frequency with which dogs eat the organs of infected sheep containing living hydatids. Take a country with many sheep, the organs of which are often eaten raw by dogs; let the water supply be scanty and procured from bogs, swamps, water-holes, and dams, on the banks of which dogs may deposit the eggs, to be blown in by the winds and washed in by the rains; let there be dogs in abundance, and we then have all the conditions necessary to the spread of the disease. If sheep, oxen, and pigs are few there will be few hydatids. If there are not many dogs there cannot be many of the tapeworms. If dogs never ate the organs containing hydatids they could never have the tapeworms. If the eggs were blown into a large river or lake it would be very unlikely that a sheep would happen to swallow the particular drop of water that contained the egg. So much may be inferred from the natural history of the parasite.

*The Geographical Distribution of Hydatid Disease.*—This disease is known to occur with greater or less frequency in all countries inhabited by Europeans or their immediate descendants. From Great Britain to America, from Denmark to Bengal, from Iceland in the North to New Zealand

in the South, may this ubiquitous parasite be found. It would be safe, I think, to assert that wherever man and his faithful companion and servant, the dog, are found together, there will be found, with greater or less frequency, hydatid disease in the former. But the frequency of the disease varies greatly in different countries, and I shall give you as briefly as I can the facts bearing upon this point—at least so far as I have been able to ascertain them. More particularly, I shall bring before your notice figures illustrating the frequency of the disease in Australia. As British subjects we naturally ask in the first place how often this disease occurs in our ancestral home.

*Hydatid Disease in Great Britain.*—When I entered upon the investigation of this question it seemed to me that there were two sources from which some reliable information might be gleaned, viz.: 1. The annual mortality returns of the Registrar-General of Births, Deaths, and Marriages; and 2nd, the annual records of the various hospitals. From the former source we might expect to learn how many persons die every year in Great Britain from hydatid disease, and from the latter how many patients come under treatment from this cause in the various hospitals. I regret to state that the amount of information from either source that I have as yet succeeded in acquiring is by no means as extensive as I could wish, for I have had at my disposal a few only of the annual reports of the Registrar-General of Births, Deaths, and Marriages for England and Wales, and I have been unable to learn anything about Scotland and Ireland. Through the kindness of Mr. Cleland, the obliging Registrar-General for South Australia, I have been able to examine the annual reports of the Registrar-General for England and Wales for the decade 1871 to 1881. During these ten years there died in England and Wales:—Males, 2,679,416; females, 2,498,895; total, 5,178,311. Of these 436 were reported to have died of hydatid disease, being at the rate of 1 out of every 11,876 deaths. Now I think, with Dr. Cobbold, that this return is very far below the true one, for many cases of hydatid disease, fatal and otherwise, are no doubt not recognised as such. However, we must for the present accept the figures as they stand. In round numbers, then, we must assume that about one death out of every 12,000 in England and Wales for the decade 1871 to 1881 was due to hydatid disease. And now what do the hospital records teach us? About three years ago I forwarded to the authorities of a large number of London and provincial hospitals printed forms seeking information upon this point.

Out of several dozens of such appeals only two received any attention, for replies reached me only from the London Hospital and the Bristol Royal Infirmary. However, I have attained access in another way to the statistics of St. Bartholomew's Hospital for the decade 1869 to 1879, and to those of St. Thomas's Hospital for the four years 1876 to 1880. The return of the London Hospital extends over the five years 1876 to 1881, that for the Bristol Royal Infirmary includes only the year 1880. However, by throwing together the returns of these four hospitals we get an idea of twenty years of hospital work in Great Britain, and they show that in all 110 cases of hydatids were under treatment. During the same period there were about 99,000 in-patients, medical and surgical, treated, so that about one case out of every 900 treated in these institutions during the periods in question was hydatids. As far, then, as the data at our disposal extend, we may conclude that about one death out of every 12,000 in England and Wales during the decade 1871-80 was due to hydatids, and that about one out of every 900 in-patients of the four hospitals mentioned was a case of hydatids.

*Germany, France, Italy, Austria, and Russia.*—As far as I have been able to ascertain, no data exists to show the prevalence of hydatids in these countries. However, the occurrence of the parasite in France, Germany, and Italy is certain. Before leaving Europe, however, there is one place which merits special attention, viz. Iceland. As I mentioned in my first paper, this country holds the unenviable position of being the one most highly infested with echinococcus disease, and it may be instructive to devote some attention to the matter. It appears certain that hydatid disease has been just as prevalent in Iceland for centuries past as it is at the present time, for the earliest medical records of the country contain references to the prevalence of an affection of the liver which could have been nothing other than this parasitic disease. Up to the present time an exact estimate of the frequency of the disease cannot be given, for the different medical men resident in the country do not agree among themselves as to the proportion of the population attacked. Then a great many persons have hydatids and yet die of some other complaint. Moreover, *post-mortem* examinations are made comparatively rarely; and lastly, many of the victims of the disease recover by the efforts of unaided nature. However, many good authorities believe that from one fifth to one seventh of the entire population of Iceland suffers from hydatid disease. Other medical observers regard

this estimate as too high, and consider that from one fiftieth to one sixtieth would be a more correct calculation. On the whole, it seems to me that the balance of evidence points in the direction of the higher rather than of the low figures. The Danish Government was so impressed with the gravity and extent of the evil, that in 1863 it deputed a distinguished helminthologist, M. Krabbe, to investigate and report upon this question, and the result of his inquiries appeared in a treatise published in 1866, written, fortunately for us, in French, and not in Danish.* He points out that the prevalence of hydatids in man is in correlation to the frequency with which sheep and oxen suffer from the same disease, and, above all, in correspondence with the very common presence of the adult tapeworm in the dogs of Iceland. In Iceland, at the time of Krabbe's report, there were, for every 100 inhabitants, 488 sheep and 36 horned cattle. Pigs, however, were scarce. Now, the proportion of sheep and cattle per 100 inhabitants in Great Britain, according to 'Mulhall's Balance Sheet of the World,' 1870 to 1880, is:—Sheep, 93; cows, 29. So that if we include under the common title of "domestic herbivora" sheep and horned cattle, we shall see that in Great Britain, per 100 persons, there were of domestic herbivora, 122; in Iceland, 524. Tersely, then, in Iceland there are, per head of human population, more than four times as many possible hosts for hydatids as there are in Great Britain.

Now, as regards the possible hosts of the tapeworm. *i.e.* the dogs. According to Krabbe, there was in Great Britain in 1855 about one dog to every fifty inhabitants. In Iceland, at the time of his investigation, about one dog to every three to five inhabitants, *i.e.* there were, at his lowest computation, ten times as many dogs per head of population in Iceland as in Great Britain. From this it follows, other things being equal, that an Icelander was threatened with hydatid infection from the dogs ten times more than an Englishman, and besides that, every Icelander dog had four times as many chances of eating the host of an hydatid as an English dog. But there are two other very important points to consider, viz. the opportunities that the dogs have of eating hydatids, and the chances of a man swallowing the eggs of the tapeworm. Of course, the number of the domestic herbivora and of dogs form only two elements in the chain of causation of

* The author of this very useful memoir is mistaken. Dr. Krabbe's work appeared first in the Danish language ('Helminthologiske Undersögelser i Danmark og Paa Island,' 1865) and the following year in French.—T. S. Cobbold.

hydatid disease. The most important elements by far are the numbers of these animals infested with the parasite, and the chances of mutual infection of the dogs and domestic herbivora. And first, how many sheep, for example, are there affected with hydatids in the two countries? As regards Great Britain I have no data; but as concerns Iceland we have some facts, and in this connection I cannot do better than quote the following statement by Dr. J. Hjaltelin, who for many years was the chief medical officer for Iceland. He writes:—"I have for many years been investigating how frequent this disease is in the Icelandic sheep, and I have come to the conclusion that traces of it are found in more than every fifth sheep. Nearly all the peasants have ascertained that this parasite may be found in every third sheep that is more than three years old. In a district called Skaptarsyssel, with about 3000 inhabitants and 22,000 sheep, the Echinococci are said to be found in every adult sheep, and it is worth attention that just in this district every third adult person is said to have hydatids. Whether this is exact or not I cannot tell, but thus it was stated to me by a physician who has been serving there for more than thirty years." So much for the prevalence of hydatids in the chief domestic herbivora of that country, and now let us turn our attention to the dogs of Iceland. As I mentioned in my last address, Krabbe examined 100 Icelandic dogs, and found that in twenty-eight of these *Tænia echinococcus* was present, often in vast numbers. In Copenhagen he examined 500 dogs, but found this worm present in only two instances. Thus *Tænia echinococcus* is seventy times as common in Icelandic dogs as in those of Copenhagen. According to Cobbold, who is beyond question the first authority on helminthology in Great Britain, *Tænia echinococcus* has never been found present in any English dog which had not been previously fed experimentally upon hydatids. This quite corresponds with the comparatively rare occurrence of hydatid disease in England. Then it must be remembered that in a country where sheep are so numerous, dogs enjoy innumerable opportunities of eating the livers and lungs of sheep affected with Echinococcus, and thus they come to harbour vast numbers of the little tapeworms. And now, as regards the last link in the chain of causation of hydatids, viz. the swallowing by man of the egg of the tapeworm. All travellers whose works on Iceland I have read draw special and often frequent attention to the gross uncleanliness of the people. Sheep, cows, and dogs live under the same roof as the family during the long weary months of Iceland's bitter

winter. The houses are devoid of ventilation, and almost entirely of light. Sabine Baring-Gould, whose work, entitled 'Iceland, its Scenes and Sagas,' was published in 1863, describes the general character of one of the better Icelandic farm-houses thus (pp. 59 and 60) :—"Looking at the front of the house one observes five or more gables made of wood, painted red or black, wedged between turf walls from four to ten feet thick. The apex of the gable is seldom above twelve feet from the ground, very generally only eight, and is adorned with wooden horns or weathercocks. Under the central gable is the door, around which are crooks, upon which the stockings of the family are hung to dry on windy and sunny days. Passing through the door one enters a long dark passage, too low for a person to stand upright in it, leading to a ladder, which gives access to the *bathstofa*, or common eating, working, and sleeping room. This room is lighted with two or more glass panes, three inches square, inserted in the roof, and sealed in so as never to be opened for the admission of pure air. The walls are lined with beds in which sleep the people of the farm, two and even four in a bed, with the head of one at the feet of another. The Icelanders not only sleep in this room, but eat in it, making sofas of the beds and tables of their knees. In it is spent the long dark winter, with no fire, and each inmate kept warm by animal heat alone. The stifling foulness of the atmospere is inconceivable. Nobody takes a bath, and the houses swarm with vermin. The only place where a fire is kept is the kitchen, a small cell not capable of accommodating more than three or four persons at once, and unprovided with seats. Besides, the fire is made up of sheeps' dung, which smoulders without giving out much heat, till it is quickened up temporarily for roasting coffee with a little willow-root or brush-wood. The acrid, offensive smoke penetrates the whole house." I have said enough upon the subject. Add to this that dogs are permitted to clean the plates by licking them, and some idea can be formed of the personal and domestic uncleanliness of the Icelanders. Then the configuration of the country is such that extensive bogs and swamps alternate with lofty mountains, large rivers, and numerous lakes of all dimensions. The bogs and swamps are just the most suitable receptacles for the eggs of the tapeworm deposited in myriads on the long matted grass, or more solid hummocks that often stud the area of the swamps. Then owing to the diet of the people being largely composed of stock-fish scurvy is common, and raw vegetables are a delicacy and greedily consumed. This gives

another agent for the conveyance of the ova into the body. No doubt the three chief media are the bog and swamp-water used for drinking purposes, the consumption of raw vegetables upon which eggs are deposited as food, and the unclean habit of allowing dogs to cleanse the plates by licking them. Even the stock-fish that constitutes their staple article of diet is heedlessly piled on the filthy floor of the dwelling-house, ready to become befouled by the dogs. The prevalence of the disease among the sheep is explicable in like manner by the swamp-water drunk, and the grass eaten by them. The only land cultivated in Iceland is the *tun*, which is a meadow surrounding the house, varying in extent according to the number of cows kept on the farm. This field is dressed with their dung, and produces the hay which constitutes the food of the cattle during the winter. (Baring-Gould, ap. at p. 45.) It is evident how easily the grass and hay of this small meadow may become infested with the minute ova of the innumerable Tænia, harboured by the numerous dogs of an Icelandic homestead.

(*To be continued.*)

## ADVERSE OPINIONS ON TRANSFUSION.

Professor Verneuil recently objected to the operation as a dangerous one, from which he had never seen any ultimate good derived, while the advantages which are said to attend its employment are obtainable by the hypodermic injection of ether. Recently, also, at the German Congress at Eisenach, Professor König, of Göttingen, observed (*Berliner Klin. Woch.*, October 2nd) that formerly he was a warm advocate of transfusion, but that he has come later, like the majority of living surgeons, to think little of it. He has only quite exceptionally, and perhaps never, seen a favorable result follow its use, while from the injection of ether good effects are sometimes obtained. He therefore warns us not again to fall into the former prevalent transfusion deception (*Transfusionsschwindels*). Professor Schede stated that he was of much the same way of thinking as König, and now resorted to transfusion much seldomer than formerly.—*Medical Times and Gazette.*

## FOOT-AND-MOUTH DISEASE.

The importance of the subject of this disease has again been shown, by the way the markets and fairs of Norfolk and other eastern counties have been regulated by Privy Council Orders, and, further, by the way the breeders and feeders of stock in Norfolk have again discussed the subject and waited on Mr. Mundella, to place their resolutions and conclusions before him. The subject was revived by the president of the Norfolk Chamber of Agriculture calling a public meeting at Norwich, to support an application which had been made by Mr. Birkbeck, M.P., to Mr. Mundella; the application was: "That other than the Metropolitan Market should be open to the sale of fat cattle sold on Norwich Hill and at the cattle sales held in the county."

Mr. Birkbeck had previously written to Mr. Mundella, the above suggestion having been embodied in his letter; but the suggestion was not favorably received by the Privy Council. After reciting what had been conceded in reference to allowing fat stock to be taken to the Metropolitan Market, to be there subject to the current special regulations of that market, Mr. Mundella concludes as follows: "Their lordships are of opinion that considerable risk of spreading the disease would be incurred if animals were to be removed, as proposed, from markets in Norfolk to other markets in the country which are not subject to the restrictions imposed in the metropolis."

The public meeting mentioned was called in consequence of the above reply, and it was largely attended by influential farmers and graziers. Mr. Birkbeck moved a resolution which embodied the above suggestion, and in which it was said, "the new order will seriously and needlessly affect the agricultural interest and the consumers generally," while it concluded with what would appear to be, at first sight, a plausible and reasonable proviso, viz. "Such fat cattle being removed with the present certificate and licence, and all slaughtered within six days of the first sale."

Mr. Birkbeck supported the resolution in a vigorous speech, in the course of which he said, "It was perfectly well known that some of the best buyers came from the midland counties—from the large towns in the Midlands." He also read a letter from the Earl of Leicester. The noble earl, while admitting that "there must be some more stringent law in regard to store stock," made the following strong remarks on the subject of fat animals, the question then before the meeting: "If," said the noble earl, "we are annually to be subjected to the regulations

now coming into force, Dec. 10, as far as Norfolk is concerned, I would rather run the risk of foot-and-mouth disease."

*Mr. Birkbeck* made another remark or two worth mentioning here, viz. "About six weeks ago he had occasion to speak to Mr. Mundella about this unfortunate outbreak of foot-and-mouth disease, when Mr. Mundella made the remark, that he 'did not think very much of Norwich and Norfolk, because they had been slack,' and perhaps they had not done their duty as they might have done.' This is a charge and admission that I shall have to refer to below.

*Mr. R. T. Gurdon, M.P.*, seconded the resolution. After reviewing the object of the meeting, as set forth in the resolution, the hon. gentleman said: "They must remember that Norfolk had a Cattle Disease Committee, and the executive committee of that body would have a meeting that day. That committee was a hard-working and painstaking one, presided over by Mr. Clare Sewell Read." The hon. gentleman then suggested that there should be united action, concluding as follows: "If a strong representative deputation, not only from that meeting, but from the local authority, were to wait upon the Privy Council, it would be seen that they were asking not for leniency or mercy, but for justice.

The deputation waited on Mr. Mundella on Monday last, when the views above referred to were repeated.

*Mr. Mundella*, in reply, confined himself almost entirely to facts in answer to the appeal made to him. He pointed out that, in 1871, when there were no restrictions in force, there were 52,164 outbreaks of disease, and 691,565 animals attacked. In 1881, after the passing of the Act of 1878, giving power to the Privy Council to enforce restrictions in different parts of England where disease existed, there were only 4883 outbreaks, and 183,049 animals attacked. "That was a sufficient reply," continued the hon. gentleman, "to some of the members of the deputation who said that the Act had been a failure."

*Mr. Mundella* concluded by saying emphatically, "I am advised by the Veterinary Department, that to relax the restrictions as proposed would be simply ruinous and most dangerous to other districts. We have met the views of the farmers of Norfolk as much as possible, and we can go no further."

Now, the whole of the points of infectious and contagious diseases, and the way to suppress them or stamp them out, are raised in the foregoing. We have, for the time being, to deal only with the way to get rid of foot-and-mouth disease now that it is in our midst. It is now well understood that this can only be done by preventing healthy animals from being contaminated by contact with diseased animals, or by their exhalations and the

evacuations they leave behind them. This disease requires to be treated in the same way as a more virulent and immediately destructive disease—that is, if we would get rid of it. We now understand how this can be done, and that there is only one way of doing it. The way to do it is to ensure the perfect isolation of diseased animals. When the cattle plague was among us in 1865, preventive and remedial specifics were tried, but the animals attacked died, and all the healthy animals that received the germs of the disease, whether by inhalation or taking them in food or water, as certainly took the disease as a human being would take Asiatic cholera under the same conditions. Slaughter and burial of the whole herd attacked were decided upon at length as being the only trustworthy method of stamping it out, or ridding the land of its virulent germs. This has taught us a lesson in other diseases, both human and animal. It is not necessary, however, to kill a herd when one animal is attacked with foot-and-mouth disease. But to free a district of it when it has made an attack there, and to prevent its spreading beyond the district in which it exists, the control and confinement of the germs, whether in the form of exhalations or matter from eruptions, must be as perfect or complete as though the diseased animals had been attacked with rinderpest and slaughtered and buried.

So satisfied were all the veterinary authorities, after the experience of rinderpest in 1865-6-7, that when it was imported again in 1877 it was literally "taken by the horns" at once, the result being that it was confined to the metropolitan district. Nevertheless, while the veterinary department of the Privy Council and their inspectors were doing their work very properly and effectually, some M.P.'s, who were almost entirely ignorant of live-stock management, and quite so of their diseases, moved for a committee "to inquire into the cattle plague and the importation of live stock." After an excited discussion this committee was appointed, and twenty-five members nominated. I mention this to show that, however well a subject of public importance may be understood by experts, there will always be a number of public men who will raise questions and argue that the course pursued by the experts is against the general public interest—in the case in question it was of course said to be against the interest of consumers.

I have made this reference for another reason, which it will be seen is of importance in this place. Mr. C. S. Read had probably as much experience as any one of the rinderpest during 1865-6; and he, early in the progress of its course, came to the conclusion that the only way to stamp it out of the country was the most expeditious and perfect form of isolation, which consists

in immediate slaughter and burial. Now, when this Parliamentary Committee was appointed and members to serve on it were nominated, what did Mr. C. S. Read do? He very properly displayed the courage of his opinions. Mr. Read declined to serve on the committee; but I will quote the exact words referring to him as they appeared in a report in the *Field* of May 5, 1877 (p. 544): "Mr. Clare Read declined to serve, on the ground that a committee was unnecessary, and that *short and decisive action* would better answer the purpose."

The point of this quotation, containing the decision of Mr. Read in 1877, is both clear and important. His "short and decisive action," of course, meant—indeed, it was frequently so explained at the time—immediate isolation by slaughter and burial. Now, Mr. Read, as I have intimated, is a great authority on the diseases of animals. It needed not his appointment to the chairmanship of the Norfolk Cattle Diseases Committee to show this, nor to show that he has the confidence of the landowners and farmers of Norfolk in respect to it. What, then, are Mr. Read's present views in regard to stamping out foot-and-mouth disease in Norfolk and all the other counties in which it at present exists?

The broad question now is—Is it important to free the country once more of this insidious and injurious disease? I should have thought that not a single breeder and grazier in the country would have appeared to think otherwise. Every man of experience will say it is all-important. The next question is—How is it to be done? This is answered by the result of the restrictions that were imposed in 1877 as a safeguard against the spread of the rinderpest. With the suppression of the rinderpest the foot-and-mouth disease disappeared. The enforcement of the same restrictions now would be most surely attended with the same result.

For months past I have been pointing out in other places that the regulations by the Privy Council were only of a piecemeal character, and that the disease would never be stamped out by such means. I have frequently quoted Norfolk as being certain to afford an example of this. After the outbreak last year the disease left Norfolk, either through being stamped out or by working itself out. It travelled north, and reached as far as the north of Derbyshire and the borders of Yorkshire. I have frequently said during the present year it would soon be back in Norfolk again. Even if it be correct that an animal which has gone through with it will not be subject to another attack for twelve months, there has been ample time for animals that were attacked early last year to be again predisposed to receive the disease. At this time the disease is declining in Derbyshire and

other places, where it has been running through herds for some months past. But it will be the same with other counties and districts as it has been with Norfolk if the disease be allowed to flit about the country till the spring, as it has now done for nearly two years. Before twelve months there will be fresh subjects for attack where it is now dying out. So it will go on for ever unless the same effectual means of suppression are adopted as were successfully begun in 1877.

With this knowledge before me I wrote in another place a fortnight ago—the day on which the Norwich meeting took place—that it was of the utmost importance that every market and place of public sale in the counties where the disease is known to exist should be closed for at least two months, and that all animals sold should be removed under special licence only. The disease might, no doubt, be completely stamped out by that time. The cost of obtaining special licences should, of course, be discharged out of some public fund.

The direct loss from this necessary method of suppression would be small at this season. Norfolk, indeed, is crying out under the present restrictions there, when there is no reason why her graziers should be much hurt. The course of trade is easily and quickly regulated in these days of telegraphs. Supposing, then, that Norwich Hill is free for the next month of buyers from the Midlands; the result will be that more Eastern Counties' beasts will be sent to London; the further result will be that this news will be telegraphed to the north of England and Scotland, and the beasts that would have been sent to London will be dropped down at Wakefield, Sheffield, Leicester, and other towns whence the Midland butchers have hitherto journeyed to Norwich to buy.

I have on this occasion confined myself to the present situation, and the object and way to get rid of this disease once more. We know well enough how it last arrived. We will talk about the way to keep it from being re-imported when it has again disappeared from our midst. That it can be prevented from being imported is clear from the way Ireland has been kept free from it while it has been in England two years. That it may be kept from spreading from county to county is as clearly proved by the way Scotland remains free from it. Now is the season for "short and decisive action," as there is but little necessity for animals being moved from county to county. It is to be hoped the landowners, farmers, and graziers of Norfolk will not imitate the "liberal" members of the committee with whom Mr. C. S. Read declined to serve. The cry in every county where the disease is should be Isolate! Isolate! Isolate!—*Field.*

W. W. G.

## MILK AND DISEASE.

Milk is perhaps the most important article of food entering into daily use, since it forms the entire, or almost entire food of children at an age when they are but little able to resist any tampering with their nourishment; but the purity of milk (adds Professor P. A. Simpson, M.D., in an article in *Good Words*) has also an important bearing upon the health of the community at large, since in addition to adulteration which it occasionally contains, it is now known to be a ready absorbent of certain poisonous emanations producing disease or death in persons using it as food. The adulterations of milk are few in number, and for the most part easy of detection. It was formerly supposed that calves' brains were added to milk to impart richness and consistency to it. But apart from the fact that the supply of calves' brains would be wholly insufficient for this purpose, the admixture would require very clever manipulation to prevent detection by the purchaser. It is equally unlikely that chalk is a frequent adulteration in milk, for the chalk, from its weight and insolubility, would at once sink to the bottom of the vessel, where its presence would easily be recognised. Practically the adulteration of milk consists in the addition of water or the abstraction of the cream, in whole or in part, and the sale of the residue as new milk. But although by the addition of water milk is rendered less nutritious, it does not become poisonous, and we have therefore only to consider under what conditions it may become unsafe as an article of food. Milk sometimes becomes mouldy owing to the presence of a fungus—the *Oidium lactis*, or Penicillium—and its use when in that condition has occasionally produced poisonous symptoms of a serious character. Whether the milk obtained from animals suffering from foot-and-mouth disease gives rise in man to any disorders is still a disputed point; at all events it frequently has been made use of without any ill effects being induced. It is certain, however, that pigs are almost invariably seized with the same disease in a few hours when fed with the milk of animals thus affected, and its presence in sheep and hares may be accounted for by their having fed upon herbage tainted with the saliva of diseased cattle. Various epidemics which have occurred in England and Scotland make it quite clear that milk is sometimes a means of conveying the poisons of typhoid fever and of scarlet fever. In the former case it has probably most frequently arisen from the watering of the

milk or the rinsing of the milk vessels with foul water containing the elements of the disease; but sometimes it has arisen from the typhoid effluvia being absorbed by the milk. The scarlet fever poison would appear to get into the milk from the skin or throat discharges of persons affected with the disease who were employed in the dairy while ill or partly convalescent.—*The Farmer and the Chamber of Agriculture Journal.*

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## OUTBREAK OF CATTLE DISEASE IN DURHAM.

A MEETING of the Local Authority, under the Contagious Diseases (Animals) Act, for the North Division of Easington Ward, was recently held in Sunderland, the members present being Major Briggs, J.P. (in the chair), Mr. James Hartley, J.P., and Mr. James Laing, J.P. In accordance with the resolution of the Committee at its last meeting, the Privy Council were requested by the clerk of the peace to send down an inspector to inquire into the outbreak of pleuro-pneumonia, which appeared chronic in this and the adjoining divisions. The Chairman reported that Mr. Cope, the chief inspector of the Veterinary Department of the Privy Council, came down, and after carefully investigating the outbreak, as well as making a *post-mortem* of the lungs of two deceased cows, he gave it as his opinion that pleuro-pneumonia existed, and advised that all the cattle on the affected farms which had been in contact with those already destroyed should be at once slaughtered, as those now without visible signs of disease would sooner or later display it, and, indeed, might have been for a long time propagating it. He also stated that an animal which had apparently recovered from a mild attack was the most dangerous, as it could without suspicion communicate the disease in healthy byres. Such animals were often the cause of outbreaks in different districts, outbreaks for some time unaccountable, until the animals again sickened and were destroyed. One cow slaughtered, although only a few days before showing disease, he had no doubt had been infected for six months. After experiments conducted by his department of a most costly nature, and extending over a long period, they had failed to convey this disease to cows which had been isolated for three months to make sure that they were healthy. Food taken from before diseased animals, their litter and their entrails spread in their bedding, injecting blood from diseased animals, even putting

their steaming infected lungs into the feeding troughs of the healthy cows all failed to propagate this disease, and therefore his department were satisfied that pleuro-pneumonia was in most cases propagated by healthy animals inhaling the breath of diseased ones. Sheep or pigs could not be infected. These observations he repeated before a meeting of the chief committee of the county, and again advised the immediate slaughter of infected animals.

The authority, after hearing the Chairman's statement, ordered the immediate slaughter of the cows on Mr. Bradley's farm at Southwick, and those on the North Hall Farm (Mr. Robson's). It was also ordered that Mr. Dudgeon should officially examine the carcases of all cows intended for sale as food, before they were offered for sale.—*The Newcastle Daily Journal.*

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## ON THE ROLE OF THE *DISTOMA HÆMATOBIUM* IN THE FORMATION OF VESICAL CALCULI.

By Dr. Zancarol, Surgeon to the Greek Hospital in Alexandria.

Dr. Zancarol, who, it will be remembered, made a communication to the Pathological Society, in the early part of the present year, on the *Bilharzia hæmatobia* as found in the genito-urinary tract, communicates to our contemporary, the *Revue de Chirurgie* for August last, an interesting paper with the above title. The presence of our soldiers in Egypt at the present time cannot but lend an additional interest to the subject, and so we give, as briefly as may be, the following abstract of the paper. The object of it is to make known the results obtained by the author in litholapaxy, and to contrast these with the results of fifty-four lithotomies and thirteen ordinary lithotrities, all performed in the Greek Hospital at Alexandria, as well as to show the *rôle* of the distoma in producing calculi. This great frequency of vesical calculus in Egypt is due to the presence of the *Distoma hæmatobium*. It is quite exceptional in Egypt not to find the ova of the distoma in the urine of natives of the lower classes affected with calculus vesicæ. The unfiltered Nile water is the vehicle by which the parasite is conveyed into the body. The fellaheen drink the water without filtering it, while the Europeans filter it very carefully before drinking it; hence the former are frequently calculous, and present the distoma in their urine, while the latter are constantly exempt both from the distoma and the calculi—unless, of course, they be careless

enough to drink Nile water without filtering it previously. The active agent in producing stone, among the Arabs especially, is the *Distoma hæmatobium*—a trematode parasite of distinct sex, discovered in Egypt in 1857 by Bilharz, refound later on at the Cape by Harley, and more particularly studied quite recently by Griesinger, and by Sonsino still later. The male is cylindrical, about one centimetre in length, provided with a gynecoforous cavity or canal, in which the female is received. The female is thinner, finer, and filiform, and measures about one centimetre and a half. The usual habitation of the entozoa is the blood of the portal, mesenteric, vesical, and hæmorrhoidal veins. The presence of the ova either in the urine, or more rarely in the fæces, betrays the existence of these parasites in the organism. The eggs have the form of cucumber seeds, one end being rounded, the other sharp, and are provided with an appendix; this latter is at one or other extremity of the ova which come from the bladder, while it is situated laterally on the ova which are found in the fæces. The ovum consists of an anhistous membrane containing the embryo. Once set free in the urine, the embryo may continue to develop during the next twenty-four hours, according to Sonsino. By following with the microscope the first stage of its evolution, the external envelope of the ovum may be seen to rupture at some point and give passage to the embryo; this, being provided with vibratory cilia, moves about in a characteristic manner by contorting its body into varying forms. Bilharz, Griesinger, and Sonsino have described the changes which the ova excite in the genito-urinary, and more rarely in the intestinal, mucous membranes; their number is prodigious, and, deposited in the portal system of veins, they accumulate in the vesical veins, and thence find their way into the submucous tissue of the bladder in such considerable masses that at places the mucous membrane ruptures, and so gives rise to frequent and intractable hæmorrhages. These infiltrations in the submucous tissue and in the reticulum of the mucous membrane lead to subacute and chronic changes, to villous and fungoid vegetations, which, from their favouring the decomposition of the urine, become coated with calculous incrustations of considerable extent. The bladder, as it thus becomes thicker, loses its elasticity. The incrustations detach themselves in places, agglomerate together, and so form the nucleus for a calculus, which then enlarges by successive layers deposited on its surface. On some occasions the external membranes of the ova have been found in the centre of a calculus as its nucleus.

After relating fourteen cases of litholapaxy, of which two were fatal, the author adds the following particulars of the cases:—The average stay in hospital was a little over ten days; the operations lasted from seven minutes to two hours and a half; and the longer *séances* did not seem to produce any ill effects whatever on the patients. As regards complications, there was one case of orchitis, and one case in which the urethra had to be incised in order to allow passage of the lithotrite. Slight rise of temperature was observed on the evening of the operation, with a prompt return to the normal on the following day. Comparing these results with those obtained from the old method of lithotrity, in the author's practice the numbers of cured and fatal cases were not so very different; but the less suffering and the more rapid result speak considerably in favour of Bigelow's litholapaxy. Of the fifty-four lateral lithotomies, nine died; this gives a higher mortality by two per cent. than does litholapaxy. On the other hand, some of the calculi were of exceptionally large size. In many of the fatal cases, however, extensive pathological changes existed, which were not due in any way to the operation. Dr. Zancarol inclines, however, to litholapaxy more and more, reserving lithotomy for the largest-sized stones—all, in fact, above sixty grammes (900 grains about). Two conditions are indispensable to success in litholapaxy—a tolerant bladder (he refers to cases in which, even after chloroformisation, the bladder was in a state of constant contraction), and a large or a dilatable urethra. These two conditions absent, he would prefer lithotomy.—*Med. Times and Gaz.*

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## ENTOZOA AT THE ROYAL MEDICAL AND CHIRURGICAL SOCIETY.

The meeting of this Society on Tuesday last was one of unusual interest on account of an exhibition of various entozoa which infest the human species. Dr. Cobbold exhibited specimens of the *Bilharzia hæmatobia*, the eggs, and living embryos hatching out. These specimens were highly instructive, as showing the various stages of the distoma; they were procured from the urine of patients at present under his care. Also the *Distoma heterophyes*—a very rare form of Egyptian fluke, sent to him by its discoverer, Bilharz. It was procured from the intestine of an Arab boy who had died of dysentery (it was not contended that the fluke caused the dysentery). Also the *Homalomyia scalaris*, another form of

fluke from the human intestine—a dreadful-looking beast, not unlike a pediculus. Seen through the polariscope, however, we must admit it was a beautiful *object of the microscope.* He also showed many other forms of fluke, as found in elephants, giraffes, and other animals. Dr. Stephen Mackenzie showed specimens of the *Filaria sanguinis hominis*, from the case which we reported some months ago. Dr. Bastian showed embryos of the guinea-worm and the *Trichina spiralis* from the muscles of a boar. Dr. Crocker also showed the *Biharzia hæmatobia* from the urine of a boy suffering from intermittent hæmaturia. Mr. A. P. Thomas, of Oxford, besides giving a lucid exposition of his researches concerning the life-history of the liver-fluke (which we hope to publish next week in abstract), showed microscopic specimens of the fluke in its various stages. The intermediary host, a small snail (*Linnæus trunculatus*) was shown; also a Redia (one of the nurse forms of the fluke), containing cercariæ and germs of cercariæ. The all-important discovery of this intermediary host was the reward of extraordinary labour and patience, for Mr. Thomas's researches extended over two or three years. It was incidentally mentioned that the annual mortality of sheep from the "the rot" was about 1,000,000, and that in some years it had been as high as 3,000,000. Mr. Thomas, besides having discovered the mode in which this terrible disease is conveyed, found out that salt is the cure for it. A salt solution not stronger than one third per cent. is fatal to the embryo fluke, and sheep to which corn mixed with a small portion of salt is given are proof against the fluke ova. A paper by the late Dr. Vasey Lyle, on the "Endemic Hæmaturia of the South-east Coast of Africa," was the means of bringing the subject forward. It was with much regret that we learnt the death of the author of this interesting communication, and, what is not a little curious in one who had made parasitic disease his especial study, that it was due to hydatid disease of the liver. A full report of the discussion will appear in our next issue.—*Medical Times and Gazette.*

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## THE SPINAL CORD IN CANINE CHOREA.

Dr. Hadden showed some sections of the spinal cord under the microscope from a case of canine chorea. He reminded his hearers at the outset that chorea in the dog was a totally different disease from that in the human subject, inasmuch as the same spasm recurred over and over

again; it was usually a sequela of distemper. The sections showed groups of lymphoid cells in the grey matter, mostly in the lumbar and lower dorsal regions; they were evidently emigrant leucocytes from some distended capillary, which could invariably be recognised in their immediate vicinity; there was no tendency to symmetrical arrangement. Some motor cells were seen, swollen and granular, with outlines rather indistinct. He referred to a paper by Dr. Gowers and Mr. Sankey in the Royal Medical and Chirurgical Society's *Transactions*, vol. lx, in which very similar changes were described, but they had also found changes in the white matter. He quite agreed with them in thinking that these changes were the effect, and not the cause, of the disease. The fact that they were not constant was evidence in favour of this hypothesis.—*Med. Times and Gazette.*

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## IMPORTATION OF PIGS, PORK, BACON, AND SAUSAGES FROM AMERICA.

From Germany we hear that the following draft ordinance has been presented to the Federal Council:—"1. The importation from America (the United States) of pigs, pork, bacon, and sausages of all kinds is forbidden until further notice. 2. The Imperial Chancellor is empowered to permit exceptions to this prohibitive rule, subject to the necessary measures of control. 3. The restrictive ordinance of June 25th, 1880, with respect to the importation of pork and sausages from America, is abolished." The prohibitive ordinance of June, 1880, above referred to, only applied to the importation of minced pork and sausages, but not to hams, &c., it being supposed that microscopic examination of the latter would secure the exclusion of unwholesome consignments. But it has been found impossible to exercise a rigorous surveillance in this respect; and as it is known that American pigs suffer much more than the German from trichinosis, as well as from the infectious disease called "hog cholera," the German Government feels compelled to take effective measures against the introduction of the dreaded germs. Live pigs are not imported into Germany from America in very large numbers, and of hams, pork, &c., only about 3 per cent. of the total national consumption; so that the difference could easily be made up by native breeders, or be derived from other States, such as Russia.—*The Agricultural Gazette.*

## ON THE BACTERIA OF TYPHOID FEVER.

Dr. Ernest Almquist, of Stockholm, who had been assiduously occupied for eight months in proving the presence of a bacterium (microbe) in the living blood in typhoid fever, records in the *Nordiskt Medicinskt Arkiv*, 1882, the conclusions at which he, so far, has arrived. He made these researches on a considerable number of preparations of normal and pathological blood before coagulation. After coagulation, formations are found in the blood, which are perfectly similar to bacteria, and are probably formed from torn meshes of fibrine. In the blood of persons suffering from typhoid fever, bacteria are frequently found, but very small and very few. Each bacterium has the appearance of a cylindrical, short, and slender rod, the extremities refracting light more powerfully than the middle, which appears more transparent. Still more rarely there are found in typhoid fever other formations—as short protoplasmatic threads, or as ovoid grains. On rare occasions he has detected the presence of an enormous mass of bacteria; but only for one or two days in the whole course of the fever. It is not certain that a greater number will be found in severe than in abortive cases, for in these latter Dr. Almquist has often discovered a considerable number. The bacteria are found most frequently in the second and third weeks. He thinks it necessary to search for pathogenic bacteria at the bedside of the patient, and then they are found in the blood in the purest possible condition. To obtain certain results, pure seeds must be obtained if it is wished to cultivate them or to inoculate an animal with them. Workers have, he says, too much neglected researches of this kind, and they have sought for the bacteria of a patient in the excretions, in the dead body, and even in the earth itself. In the case of typhoid fever much time and trouble are necessary, in order to find a number of bacteria sufficient to cultivate them so as to make them serve for inoculation; but it is worth the trouble, for the harvest, once found, gives results. In many infectious diseases it will be undoubtedly very easy to procure them, and perhaps it will be possible to fix the very day when the bacteria will be most frequently found in these cases. It may be presumed that the pathogenic bacteria can be perfectly cultivated in normal blood, especially in that of a person who has never been attacked by the fever. Dr. Almquist has cultivated this bacterium, taken on the eleventh day from the blood of one of the cases described, in a drop enclosed between two glasses, one of

which was concave. From this drop there was prepared successively a series of generations, and from the second generation he succeeded in inoculating a dog, with good results. The animal was hardly ill, but on the fifteenth day he found the Peyer's patches much swollen, and containing characteristic bacteria. Without having yet finished his researches, Dr. Almquist thinks that he is able to form the following opinions, viz.: — The bacterium (*microbe*) of typhoid fever is found in the blood only by accident; it vegetates principally in the walls of the intestine, and only in very small numbers in ordinary cases, and, if more are found, he thinks they are thrombi of bacteria, which, having been detached from their places, circulate in the blood, broken into particles. He then describes six forms of bacteria, which are illustrated by microscopical drawings. He thinks, from his researches, that the microbe he describes cannot strictly be classed among the genera *Bacillus*, *Micrococcus*, or *Bacterium*, but that the series of developments comprises the following phases, viz.:—The spore shoots forth a thread; several threads form a network, a mycelium, or a zoogloœa of threads. If the spores are completely formed in the threads, then the zoogloœa of threads may be transformed into a zoogloœa of delicate grains. Dr. Almquist has not yet concluded his researches, to which he intends shortly to return.—*Med. Times and Gazette.*

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## BACILLUS OF TUBERCLE.

It must be a matter of considerable anxiety to every thoughtful individual engaged in busy practice to know precisely what attitude of mind he is to adopt with regard to the pressing question of the relation which exists between micro-organisms and tuberculosis. Is he to take for gospel the doctrine that phthisis is as much caused by microphytes as hæmaturia is by *Bilharzia hæmatobia?* Or, again, is he to believe that these microzymes are no more necessary to the disease than the whistle of a steam-engine is to the escape of steam? Or, further, ought his mind on the subject rather to be still in a state of solution, ready to crystallise, however, on the proper occasion. Many minds dislike a tentative posture; they like to have a solid ground to walk upon, and no doubt have already taken the tide at its flood, and are now firm believers in the inferences which have been drawn from recent observations and experiments. The bacillus alleged to be the cause of phthisis has been shown to exist in the tubercles of various organs, and also in the

purulent secretions from tubercular cases. In the *Berliner Klinische Wochenschrift,* No. 45, is a report by Balmer and Fraentzel on the presence of bacilli in the sputa of cases of phthisis. The results of these investigations on 120 patients are quite in accordance with the latest teachings of Koch and other modern advocates of the infective nature of tuberculosis. The first grand instalment of knowledge which the above-named observers have made out may be thus succinctly expressed—No bacillus, no tubercle; where the bacillus is found in the sputa, there we have to deal with a case of phthisis. The presence of the microbe is the seal of the patient's doom. So far the authors have not presented us with any actually new discovery; they have simply arrived at a conclusion similar to that reached by other observers, after a clinical research which does not involve any very great trouble to carry out, and which on their theory, is a new means of diagnosis between doubtful cases of pulmonary disease. The method adopted in preparing the specimens was that employed by Koch and Ehrlich. The sputa were dried on cover-slips at a heat sufficient to coagulate albumen (the flame of a Bunsen's burner was used); and then the thin glasses were left in the dye solutions (gentian-violet and fuchsin) for quite twenty-four hours. The next proceeding was to thoroughly wash the preparations in distilled water, and afterwards immerse them in a dilute solution of nitric acid (one to three), from which they were again cleaned with distilled water. The specimens now require a background, against which the coloured bacilli may be more distinctly projected by contrast. For those rods stained blue by the gentian-violet solution, Bismark brown was used; and for the bacteria coloured red by the fuchsin solution, methylin blue gave the ground colour. The cover-slips having remained from half to one minute in these fluids, were again washed in distilled water, and finally dried by means of blotting-paper, and, if necessary, heat was again employed. The preparations were finally mounted in Canada balsam—we presume after having been passed through alcohol and oil of cloves in the ordinary manner of stained specimens. Not only does the bacillus thus discovered clench the diagnosis of phthisis, but the characters of the lowly organisms are a guide to the sort of case and to the prognosis. Where the find of bacilli is large, and the organisms are well developed, we are concerned with a severe case of tuberculosis, and the prognosis is proportionately bad. The number of bacteria detected in the tubercular sputa of an individual case is not

constant; it waxes and wanes with the disease, being most numerous when the destructive processes are at their worst, and reaching its maximum *sub finem vitæ*. Sometimes the microzymes are generally disseminated in the sputa; sometimes they are arranged in groups; sometimes they are plenteous, and sometimes scarce; and they may be discovered when the morbid process is very chronic, or even at a standstill, although then their numbers are much thinned. In rapidly progressing cases the formation of spores is seen to great advantage. These are the facts and inferences which Balmer and Fraentzel have brought to light by their investigations on 120 various phthisical individuals. The presence, numbers, and appearances of the bacilli in the expectoration will be seen to tally with the nature, course, and characters of the pulmonary mischief. The life-history of the bacilli, as manifested in the sputa, forms, as it were, a complete interpretation of the processes that go on in the lung, in the same fashion as a system of words is the counterpart of a train of ideas. Such results, we think, should *à priori* have been expected, if the notion that the micro-organisms are the cause of the affection be true. We suppose there can be no reasonable doubt that the observations and inferences therefrom are correct; but, that aside, it is quite possible that the evolution and involution of the bacteria in the sputa may proceed without there being necessarily a total causal relationship between the germs and the disease,—just as the noise from a cataract may increase and decrease merely as a companion to the varying mass of water rolling, without having anything to do with the cause of the variation in the quantity of water.—*Med. Times and Gazette.*

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## THE BACILLUS OF TUBERCULOSIS.

That defective ventilation, or, in other words, vitiated air, is one of the most, if not the most, potent factor in the production of tuberculosis, is among the best-established facts of hygiene, however the actual relation may be explained. In the Biological Section of the meeting of the British Association for the Advancement of Science, Mr. F. J. Faraday read a paper entitled "Considerations arising from Koch's Discovery of the Bacillus of Tuberculosis," in which, after referring to the suggestion made by Dr. Wm. Roberts in his address to the British Medical Association in 1867, that disease-germs might be "sports" from harmless sapro-

phytes which had acquired a parasitic habit, and to Pasteur's observations on the decreasing virulence of specific disease-germs when kept in the presence of oxygen, he asked whether deprivation of oxygen might not play an important part in the development of the tubercle-bacillus out of comparatively innocent forms. Dr. Angus Smith has argued that putrefaction carried on in confined spaces, as sewers, may give rise to disease-germs—enteric, diphtheritic, &c.—which are not developed when the same process goes on in the open air and in rivers; and Mr. Faraday thought that analogous conditions might be found in the lungs of persons engaged in dusty trades, working in ill-ventilated rooms, or otherwise habitually respiring imperfectly. Innocuous germs inhaled into the lungs of such persons may there undergo successive cultures in the presence of a reduced amount of oxygen, and thus, in course of time, develop into the specific bacillus of tubercle, which may then be capable of establishing itself in the lungs of healthy persons, provided they be especially susceptible or possess feeble powers of resistance. The decrease in the mortality from phthisis in the army following on improved ventilation of barracks, the benefit of as many hours as possible spent in the open air, of sea-voyages, and of iodine or carbolic inhalations in phthisis, all seem to lend support to the hypothesis.—*Med. Times and Gazette.*

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## THE BACILLUS TUBERCULOSIS.

Before a largely attended meeting of the Philadelphia County Medical Society, Dr. Formad made a demonstration of the bacilli tuberculosis, and observed that thus far there had been no reliable demonstration of the etiological relation of these bacilli to phthisis. He did not dogmatically deny it, but did assert positively that it could by no means be considered as proved. He objected to the importance attached to the reaction of these bacilli to certain staining fluids, because from his own experiments he had found it not to be peculiar. The result of Koch's inoculation experiments he discredited, because the successful ones had been made only on animals that have a very strong predisposition to tuberculosis and contract it from inoculation of non-specific substances, while others, which were claimed to be successful, he regarded as cases of pseudo-tuberculosis. The view in regard to the bacilli tuberculosis to which Dr. Formad inclined, was that they do not cause the disease, while it is likely that they do "condition the fatal issue."

The remarks were received with marked interest, and were followed by a brief discussion, participated in by Drs. Wood, Gross, Tyson, Bartholow, Cohen, and others. None of the speakers seemed to have adopted Koch's views, and it was spoken of as a matter of congratulation that one so well fitted as Dr. Formad should have presented the arguments against them, since the truth would be arrived at all the more surely if the new doctrine were put upon its defence and not allowed to establish itself without due scrutiny.—*Phil. Med. News*, October, 28th.

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## SLAUGHTER-HOUSE REFORM.

A PUBLIC meeting was held on December 9th, in the rooms of the Royal Society for the Prevention of Cruelty to Animals, Jermyn Street, by the Society for Slaughtering-house Reform, Dr. B. Richardson occupying the chair.

In a short address delivered by him, he said the objects of the Society were to establish in London a model slaughter-house, from the designs of which others equally good might be constructed, and ultimately to abolish the private slaughter-house system by the introduction of public abattoirs. In the model abattoir, it was proposed to illustrate the best and most humane lairage for animals waiting to be slaughtered, the best methods of killing and dressing, and the importance of providing the men employed with proper conveniences for cleansing themselves. Other objects were to institute a scientific and systematic inspection of the carcases of all animals slaughtered for food, to form a staff of competent inspectors for this purpose, and to discover the readiest and most effective mode of storage and preservation of the meat when it had been dressed ready for market. The best method of killing was considered by Dr. Richardson to be by means of the Bruno mask or by the poleaxe when skilfully applied. He wished to explain that he had been quoted in error by the chief rabbi at Sydney as a defender of the Jewish mode of slaughtering, while, as a matter of fact, although he had commended the Jewish system of inspecting animal food, he considered their method of killing exceedingly tedious and painful, while it did not fulfil the object it had in view, namely, that of emptying the carcase of blood.

On the motion of the *Hon. Rollo Russell* it was then resolved that a model abattoir should be erected as soon as possible.

It was further agreed, upon the suggestion of *Mr. Lester* and the *Rev. Mr. Verschoyle*, that the name of the Society should be altered to that of the London Model Abattoir Society.

Other resolutions, including an appeal for funds and votes of thanks, were also passed, and the business soon afterwards terminated.

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## SITE GRANTED FOR A VETERINARY INSTITUTE FOR VICTORIA.

We have much pleasure in announcing to our readers that the Honorable the Minister of Lands for Victoria has sanctioned the reservation of a site for a Veterinary Institute, applied for by the Australasian Veterinary Medical Association; and steps will be immediately taken for the erection of suitable buildings and the appointment of a teaching staff, so that intending pupils will soon have an opportunity of learning the rudiments of veterinary science, or of going through a thorough course of study so as to fit them to practise veterinary medicine and surgery, without the necessity of going to England, which has hitherto been the case; and in due course the school no doubt will be affiliated by the Royal College of Veterinary Surgeons, England. Having had the support of some of the leading stockowners in the colonies in obtaining this recognition for the profession at the hands of the Victorian Government, we may reasonably expect that others, for whose interest the institution will be established, will assist in forwarding this desirable movement by contributing to the building fund and by becoming subscribers—by which means they will be entitled to all the benefits of the institution—and by inducing the sons of farmers and graziers to avail themselves of the opportunity of studying veterinary science, which will be of incalculable benefit to them in any pursuit in connection with the breeding, feeding, or management of stock.—*The Australasian Veterinary Journal.*

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## AMERICAN VETERINARY COLLEGE OPENING.

We have received the *New York Turf, Field, and Farm*, containing the following description of the Veterinary College Opening. Prominent among the list of colleges that have thrown

their doors open for the reception of students, stands the American Veterinary College, No. 141, West Fifty-fourth Street, this city. On the 2nd inst., this famous school began its regular annual winter session under more favorable auspices than ever before. Its management and faculty are to be congratulated upon the result of their combined efforts. We are doubtful if the most sanguine among them could, in the few short years of its existence, have conceived the rapid progress that has marked its course. Commencing with a short dozen, it now numbers upward of fifty matriculants, and a prominent feature in this connection is the high moral standing of those seeking veterinary honours. Each succeeding year finds a better class of matriculants, in point of bearing, demeanour, and education.

Notwithstanding the almost national reputation of the school, few outside of the City of New York fully realise the excellent facilities it possesses for teaching the veterinary specialty of medicine. With a large and commodious hospital, adapted expressly to the purpose, always full of patients, with a well-established and patronised public clinic held twice a week under the personal supervision of experienced professors, the students are brought directly in daily intercourse with disease in all its varied forms.

This is the only direct way to make practical as well as theoretical veterinary surgeons and practitioners, who can at once step into honorable positions, be a credit to their community, and a boon to the suffering animal kingdom. Our best wishes go with this much-needed undertaking.

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## ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

Monthly Council, Wednesday, December 6th, 1882, the Duke of Richmond and Gordon, K.G., president, in the chair.

### Journal Committee.

*Earl Cathcart* (Chairman) reported the recommendations of the Committee with reference to arrangements for the spring number of the Society's *Journal* and other matters, and also their recommendation that Professor Brown's recent paper on "Dentition as Indicative of the Ages of Animals of the Farm" be reprinted as a pamphlet and sold at 1s. each.

### Stock Prizes Committee.

*Mr. Jacob Wilson* (Chairman) reported that the Committee had received letters from the Hon. W. Egerton and Mr. T. Rigby, with reference to a resolution of the Manchester and Liverpool Agricultural Society, suggesting that some action should be taken to prevent the exhibition of *breeding* animals in an excessively fat state, and the Committee recommended that

the Secretary be instructed to inform them that this matter is provided for at the Society's shows by No. 1 of the "Rules of Adjudication." The Committee had received and accepted an offer of a Champion Prize of £25 by the English Cart-horse Society, for the best shire stallion exhibited at York; as well as the offer of three prizes of £15, £10, and £5 respectively, by breeders of polled Aberdeen or Angus cattle, for heifers calved in 1882. Prizes for cheese and butter, offered by the local Committee, had also been accepted. The Committee had again had under their consideration the desirability of offering prizes for Welsh cattle, as well as for Norfolk and Suffolk polled, and they recommended that prizes for these breeds be included in the York prize sheet.

### Veterinary Committee.

*Colonel Kingscote* reported the recommendation of the Committee that a grant of £250 be given for carrying on veterinary experiments during the ensuing year; £50 out of this sum to be devoted to the continuation of experiments on foot-and-mouth disease at the Royal Veterinary College. The Committee had received from Dr. Roy a report on the series of experiments conducted by him at the Brown Institution on behalf of the Society, and they recommended that it be published in the *Journal*. The Committee had met seven times, and made seven reports, and they recommended that the following be the Committee for the ensuing year:—General Viscount Bridport, Lord Moreton, Marquis of Stafford, Sir M. White Ridley, Sir J. Thorold, Mr. G. M. Allender, Mr. A. Ashworth, Professor Brown, Hon. W. Egerton, Mr. George Fleming, Mr. S. P. Foster, Mr. M. J. Harpley, Colonel Kingscote, Hon. C. T. Parker, Professor Robertson, Mr. G. H. Sanday, Dr. J. Burdon Sanderson, Professor Simonds, Mr. R. Stratton, Mr. W. H. Wakefield, and Mr. Jacob Wilson.

This report was adopted.

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## CENTRAL VETERINARY MEDICAL SOCIETY.

The monthly meeting of this Society was held on the 7th of December, 1882, at 10, Red Lion Square, Mr. J. Woodger, President, occupying the chair. The other Fellows present were Messrs. T. Burrell, F. W. Wragg, C. Sheather, G. R. Dudgeon, J. Hall Brown, F. G. Samson, G. A. Banham, H. W. Caton, A. Broad, J. Rowe, G. Gray, J. Broad, Arthur Broad, T. Moore, W. Hunting, H. J. Hancock, and T. G. Chesterman.

### *Renal Calculus.*

*Mr. T. Burrell* exhibited a renal calculus, and said: Mr. President and Fellows—This specimen, to which I have much pleasure

in inviting your attention, was removed from an aged chestnut mare, that to my certain knowledge had been in almost constant work for about ten or twelve years without showing any symptoms of renal disease. She had, however, been subject to severe lameness, which I diagnosed as due to rheumatic arthritis; this was always relieved by a dose of purgative medicine, and a day or two's rest. With the exception of these attacks, which occurred about every six months, the mare enjoyed good health. During the last two years the lameness increased, and latterly the animal, after lying down, could only rise with difficulty. I then advised that she should be destroyed, but at that time had not the remotest idea that any disease affected the kidney, neither had the attendant noticed anything abnormal, either in the quantity or quality of the urine. This calculus, with the kidney containing it, was forwarded to me; a number of small cysts were situated on the surface of the latter, caused by obstruction of the uriniferous tubes; the calculus, as it lay in the pelvis of the organ, was coated with mucus.

I have not noticed, in any veterinary work with which I am acquainted, further allusion to this matter than the statement of the fact that calculi are sometimes found in the kidneys, no train of symptoms which would lead us to suspect their presence being described. I imagine that the formation of calculi is influenced in a great measure by the food which an animal takes; some descriptions of food, more especially roots, lead to the deposition of earthy phosphates. But the principal cause of the formation of these calculi is, I believe, that the horse is not allowed sufficient water, they are fed upon dry food, and kept at almost constant work, so that the skin acts very freely, with the consequence that sufficient fluid is not available to retain all the lime salts in solution. I think the practice (not, perhaps, so common now as formerly) of stinting horses in drink is most injudicious and reprehensible.

In the human subject calculi are often associated with the gouty diathesis, but this fact is not of great clinical importance to us, as uric acid is then the principal ingredient, not the carbonates, as is the case in our patient. Here, however, I think stimulating food is responsible for the tendency to calculus formation.

In man the urine is slightly acid, and the formation of a cystic carbonate of lime calculus is accounted for by supposing that the urine retained in the bladder becomes decomposed, and earthy salts precipitated.

In our patients the urine is almost always alkaline, as I can affirm from frequent examination, so that we have already present the condition which predisposes to the formation of carbonate of lime calculi. I am afraid that we dose our patients too freely with alkaline medicines; carbonate of ammonia, too, is very frequently given to horses in large doses when the system is already loaded with urea; these substances being of very

similar composition, I think the choice of drug is then anything but judicious.

I shall be pleased to hear expressions of your opinion concerning the connection between rheumatism and calculus, and as to the manner in which these bodies may be formed. I am inclined to think that they are much more common in the horse than we imagine, but that they escape notice, because the ureter being so large they pass readily downwards into the bladder. That they are thence ejected with the urine I believe to be no uncommon fact. I have known stones as large as horse beans to be thus voided.

*Mr. Broad* commented on the interesting nature of the specimen and description given, and instanced the cases of renal calculi quoted in Morton's work on the subject. The symptoms noticed were occasional abdominal pain, tenderness on pressure over the loins, straddling gait, blood or mucus with the urine, and the negative evidence that no abnormality was found in the bladder or uretha.

*Mr. Wragg* remarked that he had seen renal calculi much larger than the one before the meeting.

*Mr. Woodger* regretted that he could not add much to the discussion from practical experience, as attention was so seldom called to these cases. He had found cystic calculus of rarer occurrence than formerly.

### *Tumour in Colon.*

*Mr. Wragg* showed a portion of colon from a horse which was taken to his infirmary on the 6th and died the next morning, although it had been able to work till twelve o'clock on the night of the 5th. Peritonitis was diagonised. About six gallons of serum were found in the abdomen, and there was much effusion beneath the peritoneum, especially around the kidneys. The portion of intestine exhibited had a great amount of effusion under its peritoneal coat, and on the mucous surface was a soft sarcomatous tumour about three inches in diameter, which was the centre of an area of acute inflammation.

Several Fellows questioned Mr. Wragg upon points of the case, and referred to corresponding occurrences.

### *Concussion of the Brain.*

*Mr. Hancock* laid before the Fellows a horse's brain with a small portion of bone attached to its base, in this situation was a large blood-clot and much hyperæmia of the meningeal membranes; a very small fracture was found in close proximity to the pituitary fossa. The brain was taken from an aged chestnut mare. She had repeatedly suffered from colic, having had an especially severe attack three weeks ago. She returned to work, and continued well till Friday last, then, while being drenched for her usual complaint, she fell over backwards, striking her poll. On reaching home she was put in slings, and in about two hours violent excitement came on, followed by

coma, the mare boring her head into the corner. She died at eight o'clock the next morning. Nothing abnormal in the condition of the abdominal viscera was discoverable.

Mr. Hancock's surmise that brain disease was present before the fall gave rise to some discussion.

*Mr. Banham* urged that it was unprecedented for cerebral injury or inflammation to give rise to any symptoms simulating abdominal pain, coma or frenzy being the usual manifestations. He thought that if the mare suffered from brain affection it was during the last attack, at which time a vessel might have given way.

*Mr. Woodger* said it was evident that the immediate cause of death was hæmorrhagic effusion at the base of the brain, possibly caused when plunging and knocking her head about during a paroxysm of pain. He referred to a similar case he had seen, which resulted from a blow on the frontal bone with an iron bar. The bone was fractured in the same place, but the brain was not directly injured, some of the vessels at its base being ruptured. The clot found was very large.

*Mr. Hancock* said, in addition, that although the symptoms of brain mischief were most marked during the second illness, he noticed that after the first attack referred to the gait of the mare was very unsteady and staggering, also that when this attack came on she fell while at work. Although she walked home immediately after the severe fall she had on his premises, she never appeared to recover consciousness.

ALFRED BROAD, *Hon. Secretary.*

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## LIVERPOOL VETERINARY MEDICAL ASSOCIATION.

THE seventy-third quarterly meeting of this Association was held in the Medical Institute, Hope Street, on Friday evening, November 10th, 1882, the President (W. Leather, Esq.) in the chair.

There were present Professors Williams and Hunter, Edinburgh; Messrs. Elam, Morgan, Reynolds, Bell, Moore, Kitchen, W. Welsby, Donald, Morris, Hurndall, T. Leather, Butters, Brizell, Bain, Liverpool; Greaves, Faulkner, Hopkin, T. Taylor, W. A. Taylor, Locke, Ingham, M. J. Roberts, Manchester; Whittle, Worsley, Wilson, Nantwich; W. Woods, jun., Wigan; Lloyd, Denbigh; and Stone, Little Hulton. Dr. Rushton Parker, Professor of Physiology, School of Medicine, Liverpool; Messrs. Muirhead and Edwards, and several other gentlemen, whose names did not transpire, were present as visitors. Letters regretting their inability to attend were received from Professor Robertson, Messrs. Fleming, Lewis, Barnes, Storrar, Wolstenholme, and Barron.

The minutes of the previous meeting were read and confirmed.

The following gentlemen were elected officers of the Society for the ensuing year, viz. Mr. R. S. Reynolds, *President;* Messrs. W. Leather, J. W. T. Moore, and E. Faulkner, *Vice-Presidents;* Mr. G. Morgan, *Treasurer*, and Mr. A. Bain, *Secretary.*

On the motion of *Mr. Whittle* a cordial vote of thanks was accorded to the retiring officers, to which the *President* briefly replied.

*Mr. Elam* proposed Mr. Wilson as a member of the Association, seconded by *Mr. Morgan*, and carried.

*Mr. Morgan* proposed Mr. Welsby, seconded by *Mr. Bain*, and carried.

*Mr. Moore* nominated Mr. J. Sutcliffe Hurndall, Liverpool. *Mr. Faulkner* nominated Mr. Brizell, Liverpool; and *Mr. Bain* nominated Mr. Butters, Liverpool, and Mr. Lloyd, Denbigh, as members of the Association.

*Professor Williams*, in the course of his lecture on "Louping-Ill," remarked that it was denied that a mycelium could grow in the body, but he had proved to his own satisfaction that a mycelium could and did develop in the blood. In the disease known as "louping-ill" or "trembling," the animal has violent clonic spasms, and he named it chorea paralytica ovis. It prevailed particularly on the western slopes of Scotland. It was found in all altitudes, on all kinds of soil, and close to the seashore. The disease was to be found in animals on certain grasses of a certain age. Geological formation had nothing to do with it, provided we found certain other conditions. The disease is more fatal during cold easterly winds, more particularly if associated with inclement weather, but the weather has certainly nothing to do with the causation of the disease. The disease occurs principally in the latter end of spring and early summer months. He had not seen the disease except where the tick was found; it was not the common tick or kid, it was found entirely embedded in the skin, so much so that it could not be removed unless by injuring or destroying it. It was a parasite that lived on the blood of its host. In the Isle of Skye there are two outbreaks of the disease, occurring in spring and autumn; there are also two appearances of the tick, the disease appearing with it. Lambs that have not eaten grass take "louping-ill," proving that the disease is not communicated by or due to grass. The tick conveys the organism into the sheep maybe from the ground. The main symptoms are trembling, automatic movements, amaurosis, violent spasm, and, if frightened, the animal drops down utterly helpless, in many instances dying immediately. In some cases there is complete paralysis, in others paraplegia or hemiplegia. In all cases the appetite is good to the last. One noticeable symptom is distinct elevation of the nose.

*Post mortem.*—The organs in some cases appear quite healthy, in others a gelatinous formation surrounds the spinal cord; it

is non-vascular, of a very pale colour, and jelly-like consistency. The organism has been found in the gelatinous formation, but not yet within the nervous matter. Patches of this gelatinous formation are to be found on various parts of the cord, sometimes in lumbar region and sometimes on medulla oblongata, &c., thus giving rise to the various forms of paralysis noticeable. Have never found anything inside or outside of the brain; but sometimes effusion takes place in the ventricles, due to the anæmic condition of the animal.

In every case where the sheep were dying the tick was dying, and in every tick he found (whether on a diseased sheep or not) the same organism as in the sheep.

At the conclusion of the lecture Professor Williams showed some beautiful microscopic specimens of the organism, and taking advantage of the opportunity showed specimens of *Bacillus anthracis* and various other interesting specimens, being assisted by Professor Hunter, who manipulated the lime-light apparatus. During the time many interesting questions were asked Professor Williams by the members, but as the lecture theatre was in darkness no notes were taken.

A very hearty vote of thanks was accorded by acclamation to Professors Williams and Hunter, to which both gentlemen briefly replied.

The *Treasurer* proposed that the usual donation to the Children's Hospital and the gratuity to the hall-keeper be given, which was seconded by *Mr. Whittle* and carried.

The usual vote of thanks to the President brought one of the most interesting and instructive meetings of the Association to a close.

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## SCOTTISH METROPOLITAN VETERINARY MEDICAL ASSOCIATION.

A QUARTERLY meeting of this Society was held in the London Hotel, St. Andrew Square, Edinburgh, on Wednesday, November 15th.

The President, C. Cunningham, Esq., M.R.C.V.S., Slateford, occupied the chair, and there was a good attendance of members and friends.

The minutes of last meeting having been read and confirmed, the Secretary read some correspondence relative to the proposed British National Veterinary Congress; the Fleming Testimonial Fund; and the first Annual Meeting and dinner of the three Scottish Veterinary Medical Associations, which was arranged to be held in Glasgow, under the auspices of the West of Scotland Veterinary Medical Association, on Friday, December 22nd.

The following gentlemen were nominated for membership :— Mr. Hepburn, M.R.C.V.S., Coldstream; Mr. Johnstone, M.R.C.V.S., Peebles; Mr. McArthur, M.R.C.V.S., Hawick.

The following gentlemen were nominated as office bearers for 1883.

*President.*—C. Philips, Esq., V.S., A.V.S., Third Dragoon Guards, Piershill.

*Vice-Presidents.*—John Storrie, Esq., M.R.C.V.S., East Linton; Professor Walley, M.R.C.V.S., Edinburgh; Professor Lewis, M.R.C.V.S., Edinburgh.

*Secretary* and *Treasurer.*—R. Rutherford, M.R.C.V.S., Edinburgh.

*Mr. Philips* read a paper descriptive of a case of traumatic laminitis induced by the injudicious application for the first time of the Charlier shoe. All four feet were affected. The rectangular grooving at the base of the wall for admission of the shoe had been too deeply affected, and in Mr. Philips's opinion, the shoes, in addition, had been fitted to the groove while much too hot. The treatment adopted was removal of shoes, fomentations, poultices, and aperients with opium, the latter in large doses.

*Mr. Henry Thompson* read a very able and exhaustive paper, setting forth his views as to the effects of salt in preventing "Blood and parasitic diseases."

After referring briefly to the injurious effects on young animals of over-dosing them with decorticated cotton cakes, of which he gave some instances that had come under his own observation, and to some fatal cases from splenic apoplexy, caused by feeding the animals on fermented hay and turnips, mixed with steeped Indian meal, cotton cake, and locust bean meal—the progress of the disease in the latter cases being arrested by changing the food to plain crushed oats and bran and a little salt—he proceeded to narrate several instances in which salt, applied to the land, had acted as a preventive of red water. "On some pasture land in his neighbourhood, notorious as a hotbed of red water, six fine heifers, out of a lot of twenty-six, died of splenic apoplexy, after an illness of from two to four hours; and on the same pasture subsequently, when tenanted by another farmer, four or five cattle died from red water every year. He induced the tenant to apply common salt to the land, which he did, some thirteen years ago, to the extent of 6 cwt. per acre, and repeated the dressing a few years afterwards; and since the first application of the salt, there had never been a single case of red water on the pasture. In another part of his district red water prevailed to a very great extent, and the losses from the malady were alarming. By his advice the land was dressed with from 5 to 6 cwt. per acre of salt every alternate year, and from the first application, fourteen years ago, till the present time, there had not been a case of red water on the

farm. Nearly all the farmers in the district had since adopted the system, and they were now using from 200 to 300 tons of crushed rock-salt per annum, with the result that they were entirely free from red water. In a case of hoose in young calves—a malady caused by small thread-worms infesting the bronchial tubes—the lands were dressed with salt, and the animals kept indoors at night, and the disease had since been unknown in parts of Cumberland where it had formerly been very prevalent. An application of crushed rock-salt during the early spring months had caused scour in stirks—which in the neighbourhood of Aspatria frequently swept away whole herds of young animals—to disappear from the district. Mr. Thompson also commended this treatment as a cure for rot in sheep, stating that on a high-lying farm, on limestone formation, and the land of which was frequently and extensively dressed with lime, the occupiers had been unable to keep sheep because of the virulence of this disease. The present tenant dressed the land with salt, and now breeds high-class Lincolns, which he can keep to an advanced age, and they are never affected with fluke. In the season of 1880-81, fifteen out of sixty-five sheep on a farm in Cumberland died from fluke, and the remaining fifty made no improvement; but in 1881 the land was dressed with salt to destroy the ova, and there had not been a case of rot on the farm since. Mr. Thompson mentioned another instance where a large tub was sunk in the field, containing a solution of salt and water, which the sheep drank with great relish, although there was a stream of clear water running through the field, and the principal part of the flock recovered from the disease under this treatment. A farmer in the County of Surrey, near Aldershot—the land being of a very strong character—lost a number of sheep from louping-ill. On his (Mr. Thompson's) recommendation he applied from 5 to 6 cwt. of salt to the acre, with the best possible results, no disease having been seen since, and he now uses about 20 tons of salt every year on this farm. At Millom Parks, in the south of Cumberland, the annual average loss of sheep from louping-ill was from 100 to 150; from fifteen to twenty cattle died from red water; and in a very hot summer, from five to ten cows from dysentery. In 1881 the tenant applied 120 tons of salt to 300 acres, being at the rate of 8 cwt. per acre. During last year he lost two cows from red water and six sheep from louping-ill; while in the present year, which was a very bad one for red water, he had five cows affected, four of which died, but not a single case of louping-ill. In concluding his interesting paper, Mr. Thompson dealt first with splenic apoplexy as affecting cattle in this country, and said: We have authenticated cases where it is induced under different conditions of management, breaking out at times when the animals are on certain grazing lands, and again when they are stall fed. When cattle are attacked at pasture, I have found it on tart or sour undrained lands, and my opinion was that the

blood did not receive a sufficient quantity of saline matters necessary for its healthy composition, and the balance between its solid and fluid contents was lost and its plasticity destroyed. Again, when animals are stall fed on an excess of amylaceous and saccharine substances, whose elements are bordering on a state of change by steeping in water—conditions which are well known to favour fermentation—for instance, in the malting of barley, the starchy elements are changed into saccharine materials, which under certain conditions are readily converted into acetic acid by exposure to the air, so that when brewers' grains or cummings are steeped in water and left exposed to the air they undergo acid reaction. When animals receive for a length of time food of a fermentative character, whose action seems to be further increased by the addition of cotton cake containing a quantity of nitrogen, the blood appears to undergo some peculiar change, thus showing that the quality and nature of the food will exert a great influence in inducing a certain state or condition of the fluids and solids more or less favorable to the development and propagation of these organisms, and that the more disposed the fluids may be to enter into a state of putrefactive fermentation from an exuberance of nitrogenous principles in them, the better fitted will they be to offer a congenial nidus to such organisms. It is strange that in this country we rarely hear of the disease spreading further than the pasture on which it originates, or beyond the walls of the farm buildings where the cattle are stall fed. And may it not be possible that the immense quantities of manurial refuse from the wine-makers' establishments of the Continent may so furnish the herbage of their pastures with such an excess of azotized principles as to induce a state of the fluids of the cattle depasturing on them, peculiarly favorable to the development of the particular species of microfungus which cause splenic fever, chicken cholera, and "charbon," or "quarter-ill?" Besides the peculiarly suitable condition of the blood and fluids of the animal for the reproduction and maintenance of these organisms, we must take into consideration the possibility—nay, more, the extreme likelihood—of the refuse of the wine vats, containing, as it does, a considerable quantity of nitrogen, becoming, when spread over the pastures, a prolific nursery for the breeding of the micromorbs of the diseases. If this be so, then we have in combination all the circumstances and conditions requisite for the ready and frequent recurrence of the maladies in question, in the reproduction of the organisms which cause them, in the manure spread over the surface, and in the blood and fluids of the animals in a state ready for their reception and multiplication. I think this may reasonably account for the greater frequency of the diseases in question in the vine-growing countries on the Continent than in colder climates. However, it must be understood that I merely offer this idea, and that it must be taken for what it is worth. At all events, my practice has always pointed to the food as a

cause, both as pasture and in the byre, and from repeated satisfactory results, I have confidence in recommending the use of salt, given along with the food daily, or as a dressing to the land. If the disease be due to improper food, or the specific germs of organic life taken into the body, I feel certain that a judicious use of the chloride with the food will prevent the organisms springing into active life, and by dressing the pastures at suitable times with the same article, any germs, ova, or larvæ that may be lurking in the stems or blades of grass, whether brought to the surface by the earthworm or otherwise, will be destroyed and the animals protected from these specific diseases. Referring to the "lung strongle," it perhaps is not generally known that the parasite is "oviparous," bringing forth the young alive after being hatched within the body. Mr. A. S. Moffat, a profound naturalist and great microscopist, says: "While examining a female strongle, taken from the lungs of a diseased sheep, under a single microscope, I was not a little surprised to see the posterior half of the body suddenly split open longitudinally and about three dozen young—in every particular a precise fac simile of the parent—roll out among the water on the slide in which it was immersed; they all seemed fully matured and ready for their peculiar career." This, in my mind, readily accounts for the large number of the parasites found so early on in the complaint in the trachea and bronchial tubes; and, as already stated, I find dressing the land with salt and housing the young animals at night the best preventive. Turning to "louping-ill" in sheep—whether this complaint be due to ergotised grasses—a fungoid disease itself—or from small organisms carried by the tick, which it in turn may have contracted from some small germic body that might be concealed in the stems of the plants on the pasture—I cannot say, but the decided and extraordinary results of Mr. Norman's and Mr. Harker's experiments justify further trials of the salt dressings; for not only will the ova, larvæ, and host-bearers of insect life be annihilated, but the diseased grasses will be destroyed, and fresh succulent herbage of a nutritive character spring forth instead. The same remarks may be made as to dressing the land for the destruction of the ova, pupæ, and the host-bearers of the liver fluke; for, like my friend Mr. Moffat, I am inclined to think that the pupal stage of the fluke is passed under the external covering of the lower stems of the grasses near the damp surface of a retentive soil, and carried with the food into the interior of the animal. "Parrot-mouthed" or "shuttle-gobbed" sheep seldom become affected, on account of the malformation of the lower jaw preventing them nipping the herbage so near the surface. My reason for this view was brought about by watching the movements of a bird, one cold frosty day near Christmas, picking at a bare twig. On securing the twig I found under the bark a large quantity of larvæ, and if under the bark of a tree is the winter quarters for some of the insect pests, why can't the skin

of the stem of grasses act in the same capacity for others? In conclusion, I think few will deny the valuable use of this natural and extensively diffused commodity, which is as beneficial to the healthy construction and maintenance of the highest forms of life as it is destructive to lower organisms. For countless ages the mountains and soils have been robbed of their essential fertilising and health-giving properties by the rain, evaporated from the tropical seas, and wafted by the winds all over the lands, to find its way back, by the rivers, into the oceans from whence it came. But, may I ask, who returns the solids? Let us, then, follow the dictates of nature, and return to the lands at least a portion of the matters which have been carried away. And from practical tests I know of nothing so cheap, so beneficial, and so satisfactory in its results as chloride of soda—common salt—and I recommend its application as follows:—The stubble lands should be well dressed before being turned over at the back end of the year, as a preventive of irregular and diseased growths of our cereal and root crops, such as finger-and-toe and anbury in turnips, potato-disease, &c.; for as a rule the greatest portion of insect pests that affect these crops deposit their ova or eggs in the autumn, in the most suitable situations, as stubble roots, damp grasses, clover, leafage, &c., close to the ground; so that by dressing the land with rough crushed rock-salt before autumn ploughing, the ova of the future insects would be destroyed before they reached the larval or "grub" stage, which they do during the winter months, and cause the greatest amount of injury in this form, by eating into the roots of the different crops in spring. For grazing pastures and meadows, as a preventive of parasitic and blood affections in animals, autumn and spring applications will give the best results; but I have found in a good spring dressing all that could be desired, destroying these little organisms during some of their transformations, and before they are brought into active life by the genial rays of the summer sun. These systems, if properly carried out, which I have during the past few years from practical tests found to exceed my most sanguine expectations, would be much better, and equally as successful in destroying the germs of these specific diseases, and much more satisfactory, than subjecting our valuable flocks and herds to poisonous inoculations. Nay, I would go further, in saying that the salt washed from the land by the rains into the rivers would, I am inclined to think, have a tendency to prevent the fungoid disease which affects the skin of the lordly salmon. Another prolific nursery for insect life is the farmyard manure heap, which should have a layer of salt spread over it whenever it is dressed up. (Applause.)

*Professor Walley* said the Society were much indebted to Mr. Thompson for coming so far to give them such an interesting paper, but the assertions made were of such a sweeping character, and covered so much ground, that it was impossible to take them up at that time, and he suggested that they should

defer the discussion of the paper till their next meeting, by which time they would have opportunity of considering it after publication. He had always impressed upon those connected with the profession, and especially upon his students, the necessity of using large quantities of salt as preventives of the diseases to which Mr. Thompson alluded. He was travelling through the midland counties of England the other day, when the country was very much flooded, and he told a farmer whom he met that if he threw a little salt on the land after the floods had subsided they might save their sheep.

*Mr. Pottie* thought Mr. Thompson's assertions a little too sweeping. He held that the splenic apoplexy met with in this country was different from that of the Continent, which was an infectious disease, and the blood of which was exceedingly poisonous. He had tested the matter by feeding all kinds of animals on the flesh of beasts suffering from splenic apoplexy, and it had even been eaten by human beings, without any injurious results.

*Professor Lewis* spoke generally in favour of the application of salt to land as a preventive of disease, but doubted if it had all the curative properties assigned it by Mr. Thompson in dealing with the various diseases enumerated, many of which were of a different nature.

*Mr. Thompson,* in reply, said all the diseases to which he had referred were of a parasitic nature, and he maintained that salt would destroy them.

It was then agreed to adjourn the discussion of this paper till next meeting, the hope being expressed that Mr. Thompson would be able to attend.

### *Interesting Cases.*

*Professor Walley* submitted a specimen of tuberculosis disease on the tongue of a two-year-old stirk, sent him by Mr. M'Gillivray, Banff. The Professor said he thought it was the duty of the profession to memorialise the Privy Council to include that disease in their schedule of the contagious diseases. He also mentioned that a cow, killed at Morningside a week ago, and which had been used for milking purposes, was found to have tuberculosis in the lungs.

*Professor Walley* also exhibited an interesting specimen of nutmeg liver, which reached the enormous weight of 63 lbs., and he stated that the animal was subject to extensive ulceration of the stomach and intestines.

*Mr. W. Owen Williams,* of the New Veterinary College, submitted the intestines of a kitten, through the entire length of which was a string which the animal had swallowed. Previous to its being killed, Mr. Williams had extracted from its inside a needle and thread which it had also swallowed.

*Mr. Cameron,* Berwick, showed a ruptured stomach, with diseased liver, of a four-year-old filly.

On the motion of Mr. Rutherford, votes of thanks were given to Mr. Philips and Mr. Thompson for their papers, and with a similar compliment to the chairman, the meeting separated.

R. Rutherford, *Hon. Sec.*

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## YORKSHIRE VETERINARY MEDICAL SOCIETY.

A special Meeting was held in the Queen's Hotel, Leeds, on the 13th December to consider if any, and what, action should be taken in order to reduce the large number of inelligible persons who are applying for registration under the new act as existing practitioners. The President elect, Mr. Joseph M. Axe, was unanimously elected to the chair, and there were also present: Messrs. M. E. Naylor, J. W. Anderton, J. H. Ferguson, J. Tatam, B. Smith, F. Danby, J. Nettleton, Peter Walker, J. E. Scriven, G. Bowman, G. Whitehead, W. F. Greenhalgh, H. Cooper, H. Carter, G. Metcalfe, and the Secretary. After considerable discussion, Mr Axe proposed and Mr. Anderton seconded the resolution "That in the opinion of this meeting all candidates for registration should produce their day-books and ledgers in order to show that they have continuously practised veterinary medicine and surgery for five years," &c. Carried unanimously. Mr. Nettleton proposed and Mr. Walker seconded, "That all candidates should have attained the age of twenty years, and have practised for five years subsequently." Carried. The Secretary proposed and Mr. Naylor seconded, "That it is the bounden duty of all members of the College to object to all inelligible persons." Carried.

It was unanimously expressed that a great hardship had been inflicted upon the profession by allowing these persons to assume the title of veterinary surgeons.

William Broughton, *Hon. Sec.*

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## OBITUARY.

We have received a communication informing us of the death, on December 8th, of Mr. Edward Alleyn Evanson Ashe, M.R.C.V.S., Cork. Mr. Ashe had, we are informed, been in practice for thirty years, but, according to the Register of the Royal College of Veterinary Surgeons, his diploma only bears date April 16th, 1874. Mr. Ashe was a man much respected for his ability in his profession, and, like the late Mr. Robert Olden, V.S., obtained Professor Dick's medal for superior knowledge during his collegiate career. In his younger days he was

passionately devoted to the pastimes of the field, and a more finished horseman than he was it would be difficult to find. He was also an owner of some good racehorses. His son, Mr. J. H. Ashe, V.S., succeeds him in the carrying on of the business in the George's Street establishment."—*Cork Constitution.*

We also regret to have to record the death at Collingwood, Melbourne, Australia, of Mr. Edward J. A. C. Yorston, M.R.C.V.S., which took place on the 5th November last, in the twenty-sixth year of his age.

## MISCELLANEA.

Mr. Martin sends us the following circular for publication:

### THE FLEMING TESTIMONIAL.

60, High Street,
Rochester, Kent,
*November*, 1882.

Dear Sir,—As the Commitee are desirous of closing the Subscription List of this fund at an early date, and as they are anxious that every Member of the Profession should have an opportunity of contributing to such a laudable object, they beg to remind you of it, and to solicit your favorable assent by forwarding your subscription to the Hon. Treasurer, H. J. Cartwright, F.R.C.V.S., Wolverhampton, as soon as convenient.

The very strong claims Mr. Fleming has upon the profession, should render it a pleasure to us to show that we are not oblivious of his great services, nor ungrateful for the many benefits he has conferred.

I beg to remain,
Yours truly,
J. B. Martin.

Mr.

## A FARRIER'S BILL.

Communication from Mr. G. Lewis, M.R.C.V.S., Monmouth, respecting "Existing Practitioners."

*Dec.* 18*th*, 1882.

*To the Editors of the 'Veterinarian.'*

Sirs,—The enclosed is a verbatim copy of a farrier's bill and receipt which were placed in my hands to-day. They may serve to amuse if not instruct, and at least tend to show the profession the class of men now seeking "registration" at the hands of the Council of the Royal College of Veterinary Surgeons.

I may add that the case which this learned "existing practitioner" had been attending had quite baffled his skill. He had succeeded, however, in effecting a disgraceful and permanent blemish, inflicting much unnecessary pain, and nearly ruining the animal. Such men deserve the attention of "The Royal Society for the Prevention of Cruelty to Animals," rather than "registration" with members of a scientific profession.—"*Pro Pudor.*"

November 03 1882

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THE

# VETERINARIAN.

VOL. LVI. No. 662. FEBRUARY, 1883. Fourth Series No. 338.

## Communications and Cases.

### ACTINOMYKOSIS BOVIS.

(*Illustrated by Original Drawings.*)

By J. Wortley Axe, Professor of Pathology, &c., at the Royal Veterinary College.

(*Continued from* p. 8.)

Through the kindness of several members of our profession I am enabled to add many interesting items confirmatory of the experience already gained, in my endeavour to elucidate the pathology of the disease now under consideration.

As it is desirable that the views and experiences of English veterinarians should be better known and more freely expressed, I shall be glad to have the opportunity of recording any additional facts and observations which will add to our present sum of knowledge of this as of any other equally important subject.

From Mr. Haydon Leggett, V.S., *Luton, Beds.*

*December* 15*th*, 1882,

Dear Sir,—I was sent for this afternoon to what was supposed to be an outbreak of "foot-and-mouth disease" in a heifer. On arriving at the spot I found it to be a case of actinomykosis; and, *apropos* of your valuable article in the *Veterinarian* for December, I thought you might like the opportunity of making an examination of the parts. I am sorry I cannot afford any reliable information respecting the case, as the animal has recently

changed hands several times; but I believe the disease has existed for several months.

My experience of the disease is as follows:

I never met with a case in an adult animal; all have been under three years old.

I have seen it in both sexes on clay, chalk, and gravel.

I have met with cases on the hills and in the valleys.

I have never seen a case in the summer months.

I have been in the habit of regarding the disease as arising from some innate predisposition in the animal rather than any external or mechanical cause.

I do not consider it a contagious or infectious disorder. I have known a shed of forty-two fatting bullocks, and only one became affected, although that one remained a considerable time in close contact with the rest.

I never saw two cases on one farm.

I have seen instances in the shed, yard, and meadow.

I have not found any "wens" or diseases of the head or face associated with the disease, excepting a baggy condition of the intermaxillary space.

I have never met with the disease either in the horse, sheep, or pig.

I have chiefly met with cases either during or after a general outbreak of foot-and-mouth disease.

Generally I regard the disease as uncurable.

*Remarks.*—The parts received from Mr. Leggett consisted of the head, lungs, and heart. All were carefully examined with the following results. Excepting the tongue the head displayed no evidence of disease in any of its structures.

*Tongue.*—This organ presented very marked changes, both of a physical and structural nature. In size it was very considerably diminished in all its dimensions, and resolved into an atrophied and cylindrical condition. I should say it could not be more than half its natural proportions. The free portion of the tongue was very decidedly rounded, and reduced in length to one half its usual size. The apex was turned in an upward direction and had become very obtuse, as seen in woodcut 5.

From end to end the entire organ was hard, rigid, and inflexible, and the upper and lateral surfaces presented various irregularities and tissue changes. First and most noticeable were a number of cicatricial puckerings aud depressions side by side with prominent and more or less rounded elevations, these arising from the irregular contraction of the infiltrated parts. A deep furrow crossed the base of the tongue as the result of interstitial connective-tissue growth and developmental contrac-

tions. In some parts, and especially in the centre of the posterior third of the lateral surface, the mucous layer was entirely removed and replaced by cicatricial tissue. Where the epithelium existed it was patchy, slightly raised, and of a dead-white stylotic appearance. From some places it was readily removed, leaving a red, hyperæmic, smooth, and glossy surface beneath. Where the epithelium existed only in small amount, the underlying parts were distinctly purple from congestion. Over the entire surface of the tongue the papillæ were obliterated, as the result partly of the primary inflammatory expansion of the organ, and partly also of the loss of mucous tissue by erosion and necrosis. Several small round ulcers with soft, angry-looking, greyish-yellow granulations were present on the sides and superior surface.

In dividing the organ in an antero-posterior direction, the sensation of cutting fibro-cartilage was imparted to the knife, so dense and hard were the tissues. The sectional surface was pale throughout and the muscular structure was reduced to very small proportions. The submucous zone of interstitial fibrosis, as depicted in woodcut 5, was very pronounced, as were also the interfascicular growths, which throughout the tongue were observed as white lines interposed between the muscular bundles. A few small yellowish-grey irregular areas were noticed, the site of former fungus nodules now resolved. *Fungus nests* in large numbers were present, and furnished matter for many interesting observations.

*Heart and Lungs.*—Although a most diligent search was made in these organs by dividing them through and through in fine sections nothing was found to indicate the presence of the endophyte.

Since the above came to hand Mr. Leggett, to whom I am indebted for much valuable information, has kindly forwarded to me another specimen of this interesting malady, with the following communication:

*January 20th.* 1883.

Dear Professor Axe,—I have sent you another specimen of what I consider to be a case of Actinomykosis Bovis. It was removed from a heifer which I met with on Wednesday last, and as I thought you might like to see it, I have forwarded it to you. The animal in question was within seven weeks of her time of calving. She had been suffering from the disease three or four months, but the symptoms became much aggravated during the past ten or twelve days. Besides a copious discharge of ropy saliva from the mouth, there was also a frequent and painful cough, loud and difficult breathing, attended with stertor, loss of appetite, and consequent emaciation. There was no enlargement or tumefaction of the intermaxillary space, as is frequently seen, but in the vicinity of the larynx there was con-

siderable swelling, which the owner lanced, and afterwards inserted a seton.

When I first saw the case I could only discover one or two ulcerations on the soft palate. I see now, however, there are other equally serious lesions at the base and along the side of the tongue. In the former situation there appears to be a jelly-like excrescence, which you will observe when you examine the parts.

The case occurred at Hempstead, in Herts, on the side of a hill facing north, where the soil is gravelly. The heifer had been at pasture with several others, all of which are free from disease of every description. She was bred by her owner's brother, Mr. H. Blundell, of Luton, out of an aged Alderney cow, and got by an Alderney bull belonging to Mrs. Gerard Leigh. The dam died last summer of parturient apoplexy, up to which time she was free from disease, as is also the bull at the present time.

I think it is now about thirty years since I remember seeing a very poor bullock affected with this so-called new (?) disease, which is now dignified with the term "Actinomykosis Bovis."

I am, yours very respectfully,

HAYDON LEGGETT, M.R.C.V.S.

To J. Wortley Axe, Esq.

*Remarks.*—In the tissues of the cheek on the right side there was a broad diffused aggregation of fungus nodules and nests, extending from the outer surface of the ramus of the lower jaw behind to nearly the angles of the mouth in front, giving to the cheek a swollen and rounded appearance. At the posterior part they formed a thick, closely-packed mass about an inch and a half in depth, and resembled in their external characters the tubercular masses so frequently seen in interlobular pulmonary tuberculosis and the pleural form of the same disease commonly known as "grapes." Each nodule was distinct from the others, but all were connected together by a delicate and ill-developed connective substance. Some occupied the submucous tissue, and others were embedded in the substance of the muscle.

On the left side only a few scattered nodules were found, chiefly located beneath the mucous membrane, towards the angle of the mouth. When examined with a lens one or more small opaque spots could be seen in the structure of the new growth, which on microscopical examination were found to consist of congeries of fungi and disintegrating tissue elements.

*Tongue.*—The lateral parts of this organ, along its posterior two thirds, were eroded for a considerable extent, and presented

a red, angry looking surface, on which were thickly set a number of round, greyish-white miliary granulations. The outlying mucous membrane exhibited numerous circular petechiæ as well as patches of intense hyperæmia of various sizes. A transverse section of the tongue through the invaded part showed vast numbers of closely-packed nests in the submucous tissue, in some situations forming a layer half an inch or more in thickness. The substance of the organ was perfectly free from the endophyte, and otherwise healthy.

*Pharynx*—The mucous membrane of the pharynx was of a uniform greyish white appearance throughout, very much thickened and thrown into deep rigid coarse folds; especially was this the case around the entrance of the larynx, which was almost occluded by a calyciform arrangement of the swollen and folded membrane. The surface of the mucous layer was lumpy and the epithelium loose, ragged, and œdematous. On section it was found that this thickening was due to endophytic growth in the submucous tissue. The palatine membrane exhibited similar lesions to those described in connection with the tongue. The Schneiderian membrane was free from disease as were all other parts of the head excepting those named. The lymphatic glands were red, swollen, and generally hyperæmic, somewhat softer and looser in texture than is natural; the latter condition probably arising from œdema of the tissue.

From Mr. Gooch, V.S., *Stamford.*

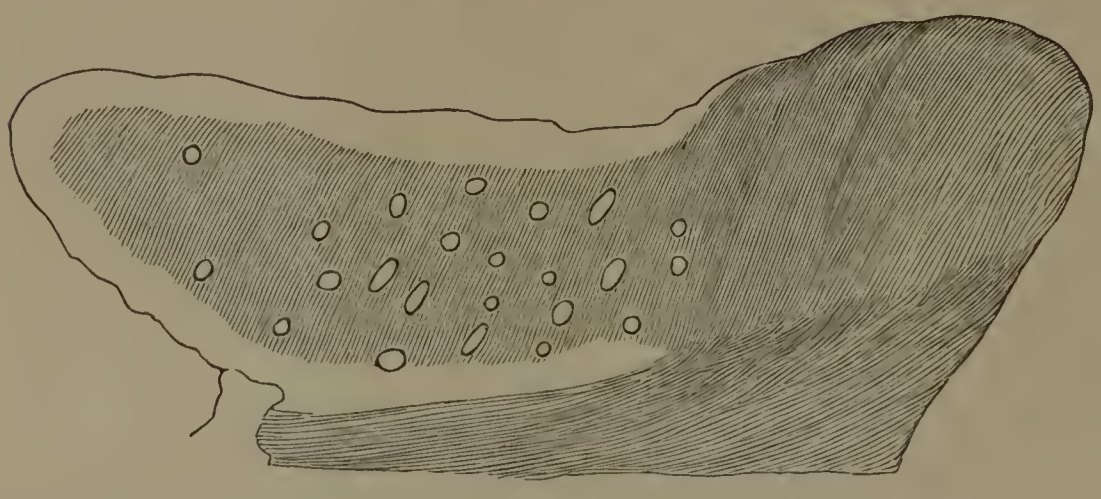
*December* 18*th*, 1882.

Dear Sir,—By Great Northern Railway I send you to-day the tongue and lower jaw of a bullock with a tumour at the anterior part of the latter. The case occurred in the practice of my father in Norfolk, who sent the specimen to me. The growth was first observed by the owner of the animal about two months ago, but it was only three weeks since my father's advice was sought. Regarding the case as one of a very doubtful character, and as the beast was at the time in good condition, he recommended that it should be destroyed. The tumour appeared to grow very rapidly, and especially since my father first saw the animal. There was also a small tumour about the size of a walnut on the upper jaw. As you are busy investigating this particular form of disease I thought the specimen might be useful to you.

*Remarks.*—The tongue and tissues contained in the lingual space were perfectly free from disease. The tumour referred to above was situated between the free portion of the former and the lower incisive arch. It was about the size of a cricket ball, and held up the anterior portion of the tongue almost in a vertical position. In form it was rounded, regular in

outline, and sessile; the surface was of a pale yellow hue, quite smooth and shiny, and free from erosions or ulcerations. In consistence it was soft though not tough. It was closely connected with the alveolar walls, from which it appeared chiefly to spring, and in consistence it resembled the fungus excrescences I have already referred to as appearing on the sides of the tongue.

Woodcut 5.



Vertical section of tongue of two-year-old steer, showing contraction and upward flexion of apex, peripheral fibroid infiltration, puckering of surface and fungous nests embedded in muscle. (From Mr. Haydon Legget's specimen.)

All the incisor teeth were loose and partially lifted from their sockets by the ingrowth of the adventitious product. On sawing through the body of the inferior maxilla, its inferior face was found to be thickened to the extent of three times its normal proportions, and showed at the same time considerable hypertrophy and condensation. The two branches were disunited at the symphysis by the interposition of new growth, and short sinuous canals containing the same material ran for some distance into the sclerosed portion of the bone. The periosteum and its internal prolongations were thickened and much condensed, but there did not appear to be any increased vascularity of the tissue.

The internal layer of compact tissue of the bone, with which the tumour was intimately connected, had undergone considerable expansion of its texture. The Haversian canals were enlarged by intertubular new growth, and the bone structure was reduced to a condition of extreme rarefaction, associated with atrophy and dissolution of its anatomical and histological parts. The adjacent cancellated tissue was similarly invaded by the new growth, giving rise to atrophy and attenuation of the bony lamellæ and confluence of the cancelli. In this condition the bone was reduced to a soft, spongy, porous state, in which it was readily cut

with a knife or broken down between the fingers. The enlarged cancellar spaces were filled with a soft, greyish, somewhat glossy homogeneous new growth, which when examined microscopically was found to consist of connective-tissue fibres, having a coarse, irregular outline and dull granular character, and immature connective-tissue corpuscles, with small round cells—leucocytes. In this tissue the undeveloped permanent incisors were completely embedded.

Since writing the above Mr. Gooch has been good enough to forward me another specimen in which the lesions are confined to the submucous tissue of the tongue.

From Mr. STANFORD, by Mr. PERCY GREGORY, V.S.,
*Tunbridge.*

*January* 19*th*, 1882.

DEAR SIR,—In reply to yours of yesterday I beg to state that the cow from which the tongue was removed was five years old. She was taken with slight foaming at the mouth about six months ago, which gradually increased, although at times it would disappear. She was kept as I usually keep my cows, viz. on grass, or hay with cotton or linseed cake, pollard, &c.

I am, yours very truly,

To Mr. Percy Gregory. JOSEPH STANFORD.

*Remarks.*—The tongue was increased in size in its posterior two thirds, in the course of which there was increasing hardness from before to behind. The anterior third of the organ was quite flexible, and exhibited its natural softness, shape, and size. In the former situation it was somewhat rounded, and to the touch distinctly nodulated.

The mucous membrane with its papillæ was normal in appearance on the dorsum. On either side, however, there was an irregular elongated erosion from two to three inches in length and an inch and a half in breadth, as well as several rounded, greyish-looking, granulating centres, evidently springing from superficial fungus nests in the mucous tissue. On and about the eroded surfaces small dark-red and purple spots were present; they varied in size between a millet seed and a pea. The superior surface of the indurated part exhibited generally a reddish-purple hue. On close examination numerous minute blood extravasations were noticed in the membrane. At this part the surface was bright and tense, and the epithelium existed only as a thin, transparent, highly-polished layer.

The papillæ were wholly obliterated, as the result of a gradual expansion of the part, due to hyperplasia of interstitial tissue and infiltration of the muscle with inflammatory products and fungus elements. Here and there small, round, circumscribed excavations

were noticed, marking the seat of recent necrosis of the mucous layer. There were also lesions of a similar description in a condition of cicatrisation.

A longitudinal section revealed in the posterior third a semi-lunar patch of dense inflammatory growth beneath the mucous membrane. This extended across the tongue as a semi-cylindrical tract of hard fibrous substance, with the convex surface directed downwards. A similar hyperplastic formation, about half an inch in thickness, extended in a forward direction from it towards the anterior part of the middle third.

The sectional surface of the tongue in the diseased segment was of a pale greyish-white hue, mottled over with numerous small, yellow, granular-looking areas, and linear markings following the direction of the muscle fibres of the organ.

Small miliary fungus nests and imperfectly outlined nodules existed here and there, embedded in the substance of the muscle. The submucous tissue in the eroded areas was intensely hyperæmic.

From Mr. Hammond, V.S., *Bale, Norfolk.*

*December 27th*, 1882.

Dear Sir,—I have this day sent you the diseased tongue of an ox. He was five years old and was one of a lot of twenty purchased last June, and put into grass. In September they were housed and fed on corn and roots. The disease had been recognised about six weeks, when I was consulted, and suggested that the animal should be slaughtered.

I may add that the remaining nineteen bullocks were all sold for slaughter, none of them showing any symptoms of the malady at the time.

*Remarks.*—The disease was confined to the posterior two thirds of the tongue, and excepting that the mucous layer was everywhere intact, the lesions were much the same as those referred to in Mr. Gregory's specimen.

From Mr. Whitney, V.S., *Shepton Mallet.*

*December 9th*, 1882.

My Dear Sir,—I have read with great interest the remarks of yourself and others in the *Veterinarian*, on the disease Actinomykosis, having had several cases during the past few years in heifers and cows.

In September last I attended a heifer rising three years old, suffering from this disease, and to day I was sent for to see another one about the same age, on the same farm, but not related.

In compliance with your request I have much pleasure in answering your several questions.

I have seen it in animals from two to seven years old.

All my cases have occurred in the females.

I have seen it on several different descriptions of soil, and on high and low ground.

I think it commences in the summer, but our attention is not called to the case until the disease is well established.

It is not more prevalent in wet than in dry seasons.

I was always of opinion it was cancerous in its nature.

It is not contagious. Other animals have not in my experience contracted it from the sick, although they have had ample opportunity of eating the food saturated with the saliva from the latter.

The disease always commences at grass; but little notice is taken of it until the animal is given cake and hay in the autumn.

In all long-standing cases I have found the glands enlarged. In one case the superior maxillary bone was diseased. I have only seen it in the bovine species.

*Remarks.*—In a tongue kindly forwarded to me by Mr. Whitney, since receiving the above, the lesions much resembled those already described.

(*To be continued.*)

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## ON THE PRESENCE OF ŒSTRIDEAN AND MUSCIDEAN LARVÆ IN THE HUMAN BODY.

By Dr. Jacobs. (Translated, with Footnote References and Remarks, by Professor Cobbold, M.D., F.R.S.)

(*Continued from p.* 12.)

M. Justin Goudot does not doubt that the larvæ which attack oxen and dogs in Columbia can live on man. He tried to preserve a living larva for fifteen days on one of his thighs, and thus he realised the mischief produced by the suction of the animal. In consequence of this unpleasant experience he discontinued the experiment; the length of time required was too long to obtain the perfect insect. For Goudot the parasite is *Cuterebra noxialis*.*

To these proofs it is necessary to add those of Hope to the number of twenty-three. The larvæ affix themselves to all parts of the skin of the body; they are the larvæ of integumentary

* I have here taken considerable liberty with the original paragraph, inasmuch as a literal translation would fail to convey the true meaning of Dr. Jacobs' words.—T. S. C.

Œstrids, and Hope only cites one case of stomachal Œstrid.* This was encountered in a captain of the English army, who had vomited a great number of larvæ. The description was incomplete, inasmuch as it was impossible to arrive at a specific determination.

Other facts have been observed at Mexico. It is there that Coquerel and Salle have encountered a larva named *ver Moyocuil*, which develops itself on man and on the dog. Several of the larvæ were encountered on a domestic servant by M. Boucard, and under the name of *Dermatobia hominis* M. Coquerel has made a new species of it.

In the torrid zones of the old world, amongst the Caffres, the larva of Œstrus is often met with. It is at Senegal that its presence has been demonstrated by Doctors Mondière and Beranger-Ferraud. In the neighbourhood of Gorée Dr. Mondière removed larvæ from inflammatory tumours of different regions of the body; the natives affirming that the larvæ were produced by a Muscid allied to the genus *Rhinia* (the *Idia Bigoti* of Coquerel); but the description of Coquerel points to an integumentary Œstrid allied to the Hypoderms. That is not the view of M. Pruvot; it resembles the Muscides; there are no stigmatic cavities.†

In 1875 Beranger-Ferraud, principal physician to the Senegal Marine, made known, under the name of *ver de Cayor*, a larva which was also removed from tumours of the human skin. That worm appears to live in the sand and to pass thence into man and animals, especially dogs. Mons. E. Blanchard thinks that the insect in question, which, according to Beranger-Ferraud resembles a Muscid, will belong to the genus *Ochromyia* (Macq.). This is closely allied to *Lucilia*, of which a species (*L. hominivorax*), inhabiting Guyana, frequently lives at the expense of man in the larval condition. The fly of Cayor will be *Ochromyia anthropophaga*.

The author of the memoir, from which we merely transcribe, judging from the mode of life of the larva, believes that it ought to be classed amongst the cuticular Œstrides. He does not believe that its birth occurs within the soil.‡

* The author speaks of these two groups as *Œstrides cuticoles* and *Œ. gastricoles* respectively.—T. S. C.

† In reference to African Œstrids, I have received a number of interesting specimens from the Elephant and Hartebeest. These, and also a single small larva removed from the leg of the celebrated traveller Dr. Livingstone, were presented to me by Sir John Kirk, who procured them during his travels with Livingstone. I subsequently presented them, in the original donor's name, to the museum of the Royal College of Surgeons, and they are recorded in the Catalogue of Entozoa, Nos. 196—198.—T.S.C.

‡ Dr. Jacobs here again refers to the essay or thesis of M. Pruvot, which I have not had access to.—T. S. C.

In 1861 Dr. Spring, Professor at the University of Liège, found œstridean larvæ in tumours of the head in a little girl. She had passed the summer months with the agricultural labourers (*cultivateurs*) in a village of the environs of Saint-Vith, in Prussia. She often lived in the stable and close to the cattle of the farm. The larvæ are those of *Hypoderma bovis* (Linn.). Dr. Candèze has made a drawing of the larva.

In the same notice, Mons. Spring relates four other cases of the presence of œstridean larvæ in man, observing that they are well proved. The first was received from Gaspard Wendland, a Polish doctor. "He extracted a white worm from the eyelid of an infant two years old; it was of the thickness of a *chenille*, with a round cuticle." Dr. Küchenmeister, in his 'Treatise on Parasites,' considers the case as well established. The second concerns the case of a tanner, who having dressed the hide of a deer, a tumour quickly appeared in the region of the navel, and an Œstrus larva escaped from it. The larva has not been described. M. Siebold considered the case to be authentic. The third observation, due to Bracy Clark, was reported to be a larva of the Œstrus of the ox, extracted from the jaw of a woman who died in 1786. Where was that larva developed? Was it a dermal Œstrus?* The fourth observation, taken from the treatise of Gervais and Van Beneden, reports that Professor Eschricht, of Copenhagen, had thrice observed the larvæ of the Œstrus of the ox fixed within the skin of the forehead in women.

Again, the *Zoologie médicale* records rather uncertain facts concerning the œstridean larvæ of man observed in Europe. They are—first, that of which Bateman speaks, three larvæ removed from the throat of a man in England; second, the larvæ expelled from the frontal sinuses of a woman, according to Latham; third, larvæ found in the stomach of a man who died in London; fourth, the cases established in Italy, and three larvæ removed from the auditory passage of a peasant at Rome in 1835.

(*To be continued.*)

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* By this interrogation Dr. Jacobs is evidently in doubt as to the part of the jaw affected. A little more precision in the original record would have been useful. The term jaw is often employed vaguely. The worm was probably lodged in the external soft parts.—T. S. C.

# EXPERIMENTS ON ANIMALS WITH MALE-FERN AND KAMALA.

By T. H. F. Tothill, M.R.C.P. Edin., M.R.C.S.E., Colombo. (Communicated by Professor Cobbold, M.D., F.R.S., with Preliminary Remarks.)

The experimental observations by Dr. Tothill, though few in number, are valuable, inasmuch as little or nothing has hitherto been attempted in this direction. The medical profession has recently been much pained by the circumstance that a case of poisoning by male-fern occurred in Dr. Coghill's practice at Colombo. It was recorded in the *Ceylon Observer*, and subsequently reported in the *Lancet*, in the *British Medical Journal*, and in the *Medical Times and Gazette*. With Dr. Coghill—a much esteemed practitioner—I sincerely sympathised, believing that the two separate six-drachm doses of male-fern were administered by him solely on the authority of Naphey's 'Modern Medical Therapeutics,' in which work, by a misprint, a prescription ordering a very large dose of male-fern extract is recommended. Having been consulted in several hundred cases of tapeworm—a large proportion of these patients being advised to see me by medical men of experience, including Sir James Paget among them—I felt it my duty to write a letter to the *Lancet*, warning practitioners against the employment of large doses. In that letter I purposely avoided mentioning Dr. Coghill's name, as I did not wish to add unnecessary pain to a fellow physician. The cause of Mr. Aitken's death was investigated publicly, and I believe that a verdict of "Manslaughter by misadventure" was returned; but Dr. Coghill, instead of acquiescing in that verdict, has sought to show that he was justified in giving the two large doses, of six drachms each, to his patient. My letter ran as follows:

"Poisonous Doses of Male-Fern.

"*To the Editor of the Lancet.*

"Sir,—The lamentable occurrence reported in the *Ceylon Observer*, and commented on in your last number, induces me to offer a few remarks. Probably there is no practitioner in England who would think of prescribing six drachms of the ethereal extract of male-fern for a single dose, and still less likely would he be to follow it up at a short interval by a second dose of equal amount. Having on several hundred occasions prescribed male-fern in cases of tapeworm, it may encourage others who have not enjoyed equal opportunities if I state that doses not exceeding

one drachm never occasioned serious mischief; and only in four instances within this experience did any untoward symptoms show themselves. In one case, that of an M. P., where two separate one-drachm doses were given, a slight attack of jaundice followed; and in another case, that of a little boy about seven years old, two half-drachm doses produced mental confusion. In both cases the symptoms soon passed off. I have seen no permanent ill effects from male-fern, but I have heard of one instance in which three drachms of the extract sufficed to produce alarming symptoms. It would be a pity if this valuable remedy, the preparation of which costs pharmaceutists so much trouble, should be discarded on account of its fatal employment in the Ceylon patient. In many cases of five, ten, and even fifteen years' standing, I have found it efficacious; and in one instance, where a gentleman had been treated off and on for more than sixteen years, a second half-drachm dose of the extract brought away the so-called *head* of the worm. In a little girl of two years old, the administration of ten drops finally effected the same result. I have tried most of the other vermifuges recommended in the Pharmacopœia, but out of several dozen *heads* of tapeworms in my possession not more than two of them were expelled by their agency. The male-fern extract brought away all the others.—I am, sir, yours truly,"

(*Signature.*)

"London; *October*, 16*th*, 1882."

The fact that the London correspondent of the *Ceylon Observer* quoted me as an authority on the subject of tapeworms seems to have exasperated Dr. Coghill, but I cannot employ of him such language as he has been pleased to utter concerning myself. His letter in the *Ceylon Observer* of November 21, 1882, pains me more on his and his patients' account than on my own. There was surely nothing "unpardonable" in my having stated in a private and casual conversation with the London correspondent of the paper in question, that six drachms of male-fern extract would be a suitable dose for a horse. Yet that appears to have given offence. Thus Dr. Coghill writes:

"Dr. Cobbold's expression, unpardonable in referring to a professional brother, that he would give six drachms of the male-fern to a horse, sounds 'horsey' in a leading London physician, and I was at first sight under the impression that Dr. Cobbold, who is a lecturer at the Veterinary College, Camden Town, was probably more up in treating horses than men until his letter just referred to was seen."

A far more serious matter is the false and, as I hope, ingenuous interpretation put upon my record of the results ob-

tained in the gentleman's case and in the other obstinate cases mentioned in the *Lancet* letter. On this point Dr. Coghill writes :

"Surely Dr. Cobbold is not serious when he assures us that male-fern—in his opinion the only vermifuge worthy of reliance —in one-drachm doses approaches even certainty in expelling tapeworm? The cases of five, ten, and fifteen years' standing disprove this, and I cannot help expressing my opinion that there was serious trifling, procrastination, or whatever you prefer to call it, in keeping those unfortunate patients dangling with this depressive affliction for years, when according to the specialist, a pleasant, safe, and eminently certain specific was at hand in one-drachm doses."

The Ceylon physician thus appears to think that I keep my patients "dangling" about, the fact being that these cases were cured by me in a few hours, *after they had been treated by other medical men* for the long periods above mentioned. The case of longest standing, namely sixteen years, was cured by the second half-drachm dose of male-fern extract. Dr. Coghill, however, still thinks that heroic doses are desirable for the production of a cure. Of the numerous patients seen by me, all but four or five of them had been hitherto treated unsuccessfully by other persons. If I had stated this in the *Lancet* it would have looked like boasting, but Dr. Coghill's remarks compel me to tell the truth. However, I will so far qualify my statement by saying that now and then I have, like my medical brethren, experienced great difficulty in curing obstinate cases, and in some instances I have not expelled the *head of the worm* until a second, third, or even fourth course of treatment. In the very worst of the successful cases, cures were eventually effected without the employment of large or heroic doses.

In England so much disapprobation follows the adoption of the experimental method of research, as applied to animals, that those who would in this country conduct researches of the kind now instituted by Dr. Tothill, must run the risk of various pains and penalties. I for one do not intend to repeat helminthological investigations of any kind involving either slaughter or vivisection; nevertheless, I entirely approve of what has been done, in so far as a clear good to humanity has been either sought or gained. Long before I had any connection with the Royal Veterinary College, experimental researches, verifying and extending the important results obtained by Haubner, Küchenmeister, Leuckart, Mosler, and others, were conducted by Professor Simonds and myself. But for the Ceylon mishap, Dr. Tothill's experiments would not have been made. They will prove of service to both branches of the healing art. The injurious and often destructive

effects of tapeworms amongst animals are now well known. These occur especially from *Tænia perfoliata* in the horse, from *T. expansa* in lambs, from *T. marginata, T. serrata,* and *T. cucumerina* in dogs, and from *T. crassicollis* in the cat. Any experiments, therefore, though primarily conducted with the view of determining the value of vermifuges in human practice, will prove acceptable to those who are engaged in treating animals. Not only so, such experiences may possibly be utilised to the advantage of other than purely domesticated animals, inasmuch as birds are often carried off in great number by the injurious action of tapeworms and other parasites. Internal parasites also prove destructive to fishes.

In reference to what is here recorded, Dr. Tothill, writing from Colombo on the 7th of December last, says, in a letter accompanying his communication :—"I take the liberty of sending you the results of some experiments made on animals with liquid extract of male-fern. The drug was in all cases administered by myself, and most of the *post mortems* were made by me conjointly with Dr. Vanderstraaten, the Principal of the Ceylon Medical School." He then goes on to speak of the frequency of tapeworm among the Pariah Tamil coolies in the coffee districts. He had himself treated nearly one hundred cases; and adds, "These coolies eat pork and beef almost raw whenever they can get it, and they will devour the carcase of a bullock that has died and been buried. The higher castes eat no meat, and are almost exempt. The variety is usually *T. mediocanellata*. I find an infusion of two ounces of fresh root-bark of pomegranate most effectual." Nevertheless, adds Dr. Tothill further on in his letter, "in an epidemic of tapeworm, which came under my notice some ten years ago in a village in Cornwall, male-fern succeeded in every case."

Those who have looked into my various writings on this subject will observe how strongly I have insisted upon the employment of male-fern tæniafuges in preference to those in which either pomegranate, kamala, kousso, turpentine, or even areca nut, holds the most conspicuous part.—T. S. C.

### Experiments

A. July 28th.—Gave a pig, weighing 1½ cwt., 1 oz. Ext. Fil. Maris Liq. at 4. p.m.

July 29th, morning.—Pig has refused food and water; has passed one or two natural stools.

Four p.m.—Gave 1½ oz. Ext. Filicis, with 3 drs. kamala. Pig died within two minutes of administration.

*Autopsy.*—30th, 8 a.m.

External surface of stomach intensely congested; mucous

membrane, cardiac, and slightly so liver, lungs, kidneys, and all solid viscera intensely congested. Bladder full of red-coloured urine.

Right heart full of blood and containing a large, firm, partially adherent clot; left empty, but containing three small clots. Death was evidently due to the first dose, the immediate cause being disturbance of the clot in right heart during the animal's struggles when second dose was administered. A small quantity of second dose found its way into the trachea, probably during death struggle, the milk being found in stomach.

B. July 30th.—Gave a small pig ½ oz. Ext. Fil. Maris. Death in two hours.

Right heart disturbed; left empty and contracted. Slight congestion of lungs. None of other organs.

C. July 30th.—Gave a second small pig ½ oz. Ext. Fil. Liq. Refused food, became giddy, and recovered after twenty-four hours.

D. Gave a dog 6 drs. fern oil, and 6 drs. more after four hours. Dog vomited once. No ill symptoms.

E. Gave a dog 6 drs., with 1½ dr. kamala. Vomiting and purging. Death in twelve hours.

Right heart dilated and full of blood; left empty. Mucous membrane, stomach, and small intestines congested in patches; lungs congested. Other organs normal.

F. and G. Gave two smaller dogs ½ oz. Ext. Fil. Liq. Each dog got out during the night, but have not been seen since.

*N.B.*—The two dogs D and E were large Pariahs, the size of a retriever; the other two about half that size.

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## ON PLANTS IN RELATION TO ANIMALS.

By Professor James Buckman, F.G.S., F.L.S., &c.

(*Continued from* p. 16.)

Continuing our remarks upon the Umbelliferæ, we would now direct attention to the following esculent forms of the order:

1. *Angelica Sylvestris* . . . Wild Archangel.
2. „ *archangelica* . . . Cultivated Archangel.
3. *Crithmum maritimum* . . . Rock Samphire.
4. *Heracleum sphondylium* . . Cow Parsnip.
5. *Pastinaca sativa* . . . . Parsnip.
6. *Daucus corota* . . . . . Carrot.

1. The *Common Archangel* is one of our most striking wild

Umbellifers, and is distinguished by a tall, upright, smooth habit, with purplish-red stems of very graceful form, bearing thickly packed umbels, and pinnatifid leaves, with a very large and expanded base to the petioles. It is a common plant frequently met with in moist woods and damp places. It was formerly held in great repute as a remedial agent and hence its name, which was derived from its supposed angelic properties. Now, however, its repute is all gone, but the fistular stem is recommended to be cut in lengths and put as a trap for beetles and earwigs.

2. The *Archangel* of the garden is occasionally met with in a naturalised state, as it once was at Battersea fields and other places along the Thames, to which it had doubtless escaped from garden cultivation. It is considerably larger than the wild sort, and was at one time supposed to possess very many virtues, which we shall best illustrate from Mrs. Lankester's notes.

"This plant was formerly cultivated largely in gardens on account of its leaf-stalks, which possess an aromatic, pungent taste. They were blanched and eaten as celery; now they are only used when candied, being, when so prepared, considered to be a pleasant addition to dessert. They may be seen at Messrs. Fortnum and Mason's, pressed flat and covered with crystallised sugar, tied together in neat tasty bundles with coloured ribbon. In Lapland the stalks are peeled and eaten raw as a great relish. A medicinal water was formerly distilled from the plant, and its reputation as medicine was formerly very great; and the account of its virtues given by Gerarde will certainly amuse, if it do not instruct, those who take the trouble to read it. He says:

"'The root of garden Angelica is a singular remedy against poyson and against the plague, and all infections taken by evil and corrupt aire; if you doe but take a piece of the root and hold it in your mouth, or chew the same betweene your teeth, it doth most certainly drive away the pestilential aire; yea, although the corrupt aire hath possessed the hart, yet it driveth it out againe, as rue and treacle, and such like antipharmaca doe.

"'Angelica is an enemy to poysons; it cureth pestilent diseases if used in season. A dram weight of the powder heirof is given with thin wine; or, if the fever be vehement, with distilled water of Carduus benedictus; or of tormentile, and with a little vinegar, and by itself also, or with treacle of vipers added.

"'It is reported that the root is available against witchcraft and inchantments, if a man carry the same about them, as Fuchsius saith.' He adds to its many virtues, that 'it cureth the biting of mad doggs and all other venemous beasts."*

* 'English Botany,' iv, p. 147.

Such are the remarks made by ancient worthies upon these plants; the wild one possessing medicinal power in a stronger degree, but the garden one is more aromatic.

It is strange that a plant supposed to possess so many and such varied virtues, should after all be only known as a confection. Still we had rather partake of the candied angelica than of the nauseous concoctions that at one time were made from all parts of this supposed inestimable plant. Both the leaf-stalk and stems are candied by the confectioner, and it is stated that the stalks are peeled and eaten raw as a great relish by the Laplander.

3. The *Samphire* is an umbelliferous plant, easily distinguished from all others of the same order by its glaucous, twice-ternate leaves, the divisions of which are very succulent and taper towards either extremity. The flowers are greenish yellow and inconspicuous, except from the contrast between their general hue and the blue tinge of the foliage. The whole plant is "of a spicie taste with a certaine saltnesse," on which account it has been long held in great repute as an ingredient in salads, and was declared by Gerarde to be "the pleasantest sauce, most familiar, and best agreeing with man's bodie for digestion of meates." For this purpose it is now nearly gone out of use, but it is still so much valued as a pickle, that other succulent marine herbs are not unfrequently offered for sale under the name of Samphire, for example, *Salicornia* and *Snœda*. All these substitutes, which are worthless for the purpose of pickling, may be infallibly detected on a simple examination of the leaf. Samphire is exclusively confined to the rocky seashore, and, like many other marine plants, has an extensive geographical range, being found on most of the shores of Europe, from the Crimea to the Land's End, and extends even to the Canaries. The best pickled Samphire is made from leaves which have been gathered in May, before the appearance of the flower-stalk, otherwise it is apt to be tough and stringy. The etymology of the name *Samphire* is somewhat curious; it was formerly written *Sampier*, a corruption of *Saint-Pierre;* and, more anciently still, it was called by the French *Percepierre*, by the Italians *Herba di San Pietro*, and in Latin *Petrus crescentius*. Thus a herb, properly enough called Rock Cress from its growing in the crevices of rocks, came to be known as Peter's Cress (the name Peter meaning a rock). The change to Saint Peter's Herb was an easy one; the post-fix "herb" being dropped, San Pietre became Sampier, and that Samphire. French *Bacille*, German Meerfenchel.*

Samphire was formerly so much esteemed as an esculent, and more especially as a pickle, that people were known to seek it on

* The 'Treasury of Botany,' p. 348.

almost inaccessible cliffs; and hence Shakespeare's well-known passage in Lear, where Samphire gathering was described as a "dreadful trade!"

It is, however, said to be extinct at Dover, but we have gathered it from like chalk cliffs on the Dorset coast, as well as from other formations, and we have besides pickled specimens from these localities, as it is really a good condiment. Gerarde tells us that "the leaves kept in pickle and eaten in sallads with oile and vinegar is a pleasant sauce for meat, wholesome for the stoppings of the liver, milt, and kidnies. It is the pleasantest sauce, most familiar and best agreeing with man's body." Culpepper calls it "an herb of Jupiter," and he states that it is well known almost to everybody that ill digestions and obstructions are the cause of most of the diseases which the frail nature of man is subject to; both of which might be remedied by a more frequent use of this herb."

4. The *Cow Parsnip* is a tall plant, with more or less channelled stems. It is very common about hedge-banks and on the margins of fields. Its flat seeds make it at first appear to be like the parsnip, but it is much more hairy, both in its leaves and stems. The whole plant is readily eaten by cattle, which indeed seem to thrive upon it, on which account we cannot help thinking it would be more worthy of cultivation than many other plants that have been tried. The stem is so sweet and sugary that in Siberia and Russia a spirit is distilled from them.

We have partaken of the young shoots boiled and eaten as a green with great relish, indeed, the first shoots are really more like asparagus than any other flavour we know of. In Dorset the cow parsnip plants are called *Eltrots*.*

5. The *Common Parsnip* is well known as a garden esculent. We have demonstrated that the vegetable is derived from the cultivation of the wild plant, and hence the origin of the "Student Parsnip," which is such a favourite; this we procured from some wild seed gathered in the Cotteswold district. The change took eight years to accomplish, but it is now recognised as a permanent variety, and to those who are fond of the parsnip flavour it is esteemed the best in cultivation.

6. The *Carrot* is known by two native forms, the *Daucus carota* and *D. maritimus*, the seaside carrot. It is doubtless

* Having written to the Rev. W. Barnes, the Dorset poet, for the derivation of this name, we were pleased to receive the following:

"The full or true form of Eltrot is Elt-root, the word Elt being a Friesic one, meaning strong, vigorous, stout-growing, as the Eltrot is among other parsleys.

"It is an interesting name, since Eltroot with some other words, such as Bibber, is a token that (as there are other grounds of belief for it) Fresians came into Britain with their brethren the Saxons."

from the latter that the garden esculent is derived. We once tried some wild seed in our garden, and in three years got some fair young carrots, but other work interfered with the carrying on of the experiments. Young carrots are a very favourite esculent, and the boiled root has been used in medical practice as a poultice for sores and indolent ulcers. The seeds are highly aromatic, and were formerly much used in arthritic complaints. The whole plant is slightly diuretic, and hence it is esteemed to be a very wholesome vegetable.

It is especially good in summer as food for horses and cattle, for which indeed it has been recommended to the farmer, but it is an expensive crop to cultivate.

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## IS PUPILAGE TUITION DESIRABLE?

By Thomas Greaves, F.R.C.V.S.

Whether I decide to adopt a line of argument advocating pupilage or I deprecate it altogether, I am fully persuaded there are certain carping individuals who, from a pure love of opposition, would disagree with my statements without regard to the side I advocated. A knowledge of this will not however deter me from recording a few thoughts upon the subject.

I will endeavour to divest my mind of all prejudice, and take it for granted that both parties are actuated alike by a sincere and honest desire to serve the profession, and for this end they would have the student taught such subjects and in such a manner as would lead to his becoming both useful and eminent in the calling in which Providence had placed him. It will not be necessary for me to do more than to allude to the fact that there are a great many young men who attend the specified term at college and obtain their diploma, who, commencing practice and being left to themselves, fail to become efficient practitioners. This is admitted on all hands, and by both parties it is deplored. Both therefore would equally rejoice if some method could be devised by which all students should become clever and useful practitioners; but all candid men of experience will admit that there are unfortunately some individuals, of certain types of mind and habits, which no kind of education, however long and carefully inculcated, could render professionally eminent. Admitting this, we may dispense with this class of persons, and deal only with those who are both capable and anxious to become in due course useful and eminent. We now approach closer to the subject, and it is my desire to lead the thoughts of both parties courteously and earnestly to a solution of this question for the common good.

1st. *We are agreed* that a higher scholastic education than

formerly has become necessary, and that the test shall be applied in a uniform manner by an independent examining body. This examination is not to interfere in the slightest degree with the freedom or influence of any of the teaching schools.

2nd. *We are agreed* that, however necessary it may be that a candidate should be well educated, such education itself cannot make him a clever veterinary surgeon.

3rd. *We are agreed* that lectures, however well delivered, and however profound, coupled with much study and book-learning, cannot of themselves make him a clever veterinary surgeon.

4th. *We are agreed* that, comparatively speaking, it is a very costly matter to become a veterinary surgeon, especially if the youth is obliged to undergo a term of pupilage with a practitioner, for which he would have to pay £100, added to which would be the expense of his living for one, two, or three years, and subsequently his college expenses.

It was very considerately observed by one or two speakers at the last meeting of the Council that there were many very promising young men (especially in Scotland) who really could not afford this outlay. I for one felt the full force of this argument, which I had heard often before; but we never hear of any of the colleges showing an anxiety to meet the case by reducing their fees. What is the universal maxim? Get money's worth. Now, I have had a somewhat lengthy experience in the profession, having originally paid £100 as an apprenticeship fee, and worked from morning until night amongst sick and lame horses for six years. Subsequently I attended at college the required time, got my diploma, and have ever since mixed freely amongst the brightest intellects in the profession and with others. I have ever been a careful observer, and now, after nearly fifty years of professional life, I freely and unhesitatingly state that the period I spent as a pupil has been of priceless value to me throughout my life, and that the £100 paid as an apprenticeship fee was the best laid-out money that I ever spent. I know many others who can endorse all that I have said from their own experience. At the Council meeting I related a case in point. A gentleman of superior education and ability, fresh from college, in possession of a diploma, went the other day to see a lame horse. He diagnosed the case to be one of severely sprained fetlock-joint, and treated it for such. I saw the case the day but one after his first visit, and found pus to be exuding from between hair and hoof, and the under part of the foot to be full of matter. Now, I maintain that a young man who had spent two or three years working from morning to night amongst sick and lame horses could not have made such a glaring blunder. I made bold to say at the Council meeting that "this is one of the results of college teach-

ing without pupilage." Four of the teachers who were present cried out, as if with one voice, "No, no." I replied, "What else could it be, for he had had no other teaching?" I further said, "I have no desire to speak disrespectfully or offensively of any teacher, and if I had done so I beg most respectfully to withdraw it."

5th. *We are agreed* that a practical tuition is not only desirable, but is actually essential, if the character of our profession and its public usefulness are to be maintained. Those influential and important centres of power, the Veterinary Medical Associations, are all in favour of pupilage tuition.

6th. *We are agreed* that a gentleman having obtained a diploma and commencing business on his own account, if he frequently makes gross mistakes in his diagnosis, or treats his cases incorrectly, so that his sick or lame patients rarely recover, will soon get the character of possessing only an inadequate amount of practical knowledge, and that such a one confers no credit on his teachers, his college, his examiners, nor his profession.

7th. *We are not agreed* in what manner the student should obtain the knowledge which is of such supreme importance to his success in after life; but we have arrived at a point which is the nearest approach to an understanding that has ever yet been got at.

Sir Frederick Fitzwygram at the last Council meeting very courteously and impressively stated, "that it seems to be generally admitted that the schools have not got the facilities necessary to adequately teach the student practical details." Another member maintained that we have ample power in our own hands to ensure that none but thoroughly proficient practical men are admitted into the profession by means of a far severer and stricter practical examination. Professor Walley proposed that the oral examination should precede the practical, and if the student fail in the oral that he should not go up for his practical; but if he succeeded in his oral and failed in his practical examination, that he should not again be examined on any of the oral subjects in which he had passed. Mr. Cartledge made what I think was a very wise suggestion, and which Professor Walley incorporated in his motion, to the effect that the student failing in his practical examination should be obliged to go to some veterinary surgeon to gain the knowledge which he lacked, and to bring with him when he came up again for examination a certificate proving that he has been so employed. This motion, after considerable discussion, was put to the meeting, and was lost by one vote. There were four members absent whom I knew to be heart and soul with the minority in this matter.

It is a matter which does not concern us in the least how, when, or where the student gets his practical knowledge *so*

*long as he really has it.* This is all we ask for, all we want, or all we ever wanted from a student. An examiner may examine him as long as he likes, the longer the better—the more he sees of him the more he is satisfied. I say, without fear of contradiction, that this degree of practical expertness and knowledge can only be attained by diligent observation, and working early and late amongst sick and lame horses for two or three years in conjunction with the best college teaching.

There is one word which is nearly as useful and important as that "still small voice," and that word is *compromise.* I believe that both parties, and in fact the whole of our profession, could be brought to see the wisdom and fairness of carrying out Professor Walley's motion, with Mr. Cartledge's suggestion added. The two Edinburgh professors agreed to give in their adhesion to it if we would not continue to insist on compulsory pupilage; and I cannot but feel persuaded that if it be advocated in a kindly and conciliatory spirit, it may become the law of our College, and result in the well-being of our profession. At the Council meeting Mr. Peter Taylor proposed that the student should at the practical examination be examined by the four examiners for a period of not less than a quarter of an hour by each. One member objected, and wished it to be left to the discretion of the examiners. Another objected, and made the remark, "Whatever could you find to occupy a quarter of an hour."

Mr. Taylor replied, "Why, to examine a horse as to soundness alone, if efficiently and thoroughly done, should occupy the student half an hour at least." I seconded Mr. Taylor's proposition, and it was carried. One of the speakers, in the course of the discussion, observed, as we thought in reference to his own personal experience (for our thoughts involuntarily reverted to it), that older practitioners occasionally made blunders as well as young ones. This statement no one would question, but I sighed then, as I had often done before, for cohesion of sentiment and action which experience has, alas, shown me is a perfection unattainable here below.

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## THE REVIEWERS REVIEWED.

By A. E. Macgillivray, M.R.C.V.S., Banff, N.B.

Veterinary *literateurs* seem to ignore the idea of adverse criticism, and unprofessional, as well as some professional reviewers appear inclined to favour and augment this distaste to healthy criticism by adopting a system of superficial flattery,

which is at once dangerous to the public and destructive to the "flattered few."

Nowhere will this pernicious system of superficial flattery be found more fully exemplified than in three reviews, which have lately appeared, in reference to a recently issued work on 'Bovine Medicine and Surgery' (London: Baillière, Tindall, & Co., 1882). These reviews appeared in *The Spirit of the Times*, U.S.A., for 2nd December, 1882; the *Veterinary Journal* for December last, and *The Wolverhampton Chronicle* for 3rd January current.

The ambitious aims of the author of this recently issued work on 'Bovine Medicine and Surgery' render it absolutely necessary to look minutely into the accuracy and professional calibre, so to speak, of this would-be standard work; and, when we do so, we find page after page containing the most flagrant errors of every description. Specimens of these errors will be found in the Communication (or rather Critique) in the pages of the *Veterinarian* for January, from the pen of "A Student, Edinburgh." This student is evidently a close observer in more ways than one, and his critique is quite correct and well worthy of consideration. I need not quote additional errors to supplement his extensive and astounding list; neither need I reiterate the material given by myself in the *Veterinary Journal* for November and January last in reference to this subject. Suffice it to say that the errors in this pretentious treatise on 'Bovine Medicine and Surgery' are so openly flagrant and numerous, "that he who runneth may read!"

Seeing this, then, and admitting its truth, it is rather remarkable to find such men as the editors of *The Spirit of the Times*, the *Veterinary Journal*, and *The Wolverhampton Chronicle*, all coinciding in a fulsome laudation of such a combination of errors!

There is only one way of accounting for such erratic reviews, and that is simply that the reviewers never even glanced over the pages of the author they so besplatter with praise, but took it for granted that such a handsomely got up volume, with such "finely executed" illustrations, must of necessity be worthy of all honour. The position occupied by these reviewers renders such carelessness very reprehensible indeed; take for instance the review in the *Veterinary Journal*. No one will deny that its decision on such a topic ought to have considerable influence in professional, as well as non-professional, circles, and yet its conclusions (?) are very far from satisfactory or correct. The *Veterinary Journal* reviewer says that "the work is greatly in advance of anything that has yet appeared in this section of veterinary medicine and surgery!" Is it possible that this reviewer can

never have seen Mr. J. H. Steel's work on 'The Diseases of the Ox?' Because, without doubt, Mr. Steel's book is immeasurably superior in every way to the one so favorably spoken of in the *Veterinary Journal* for December last. I think I can safely leave this point to the decision of an impartial profession.

I find, however, that our reviewer has come in contact with Mr. Steel's treatise on 'Diseases of the Ox' (see the *Veterinary Journal* for November, 1881), where we are assured that Mr. Steel's book "is far ahead of any previous work on cattle diseases!" I suppose no one will question the accuracy of this decision, and most people capable of arriving at an unbiassed opinion will agree with me in thinking that the appearance of Mr. Hill's work makes no difference in the position occupied by Mr. Steel's treatise, namely, that it (Steel's book) still stands unrivalled as a "text-book and book of reference."

The *Veterinary Journal* reviewer further says that Mr. Hill's work "adequately represents the present position of the subject." Well, I should feel inclined to assert that, if this be true, the "subject" must at present be in a very muddled condition (see "A Student's" communication in last month's *Veterinarian*.

In *The Spirit of the Times* for the 2nd December last, the veterinary editor, Dr. R. W. Finlay, V.S., treats us to a thoroughly flattering review of Mr. Hill's book, which he styles "this great work, undoubtedly the most important of recent contributions to veterinary literature," thus casting completely into the shade the works of such writers as Williams, Walley, Fleming, Steel, &c. In fact our author is evidently, in this reviewer's opinion, the "brightest star" in veterinary literature, his work being "the largest, handsomest, and most comprehensive treatise on the subject yet issued!" This sublime flattery is only equalled by the ubiquitous properties, so to speak, of our author's production, which, "while of a thoroughly standard character, is yet written so that non-professionals may obtain a practical knowledge," &c., for I need not go on quoting from a critique which says that Mr. Hill's work is "couched in language so plain and forcible that disease is well defined." Well, yes, Dr. R. W. Finlay, diseases are in a great many instances well defined in Hill's 'Bovine Medicine and Surgery.' Not, however, by Mr. Hill's pen, but by extracts from other authors; between twenty and thirty of the articles on various subjects being composed entirely of extracts. No thanks, then, to Mr. Hill for the "perfectly lucid manner" in which these subjects are treated!

The editor of the *Wolverhampton Chronicle* flatters quietly but steadily all through his review. Mr. Hill evidently stands high with this reviewer, and as evidently this reviewer knows very

little about veterinary matters. There are two things in this review which I must note in particular, namely, that Mr. Hill's book on 'The Diseases of the Dog' *has already passed through several editions.* This is something new and rather incredible; a *second* edition has been issued or announced, which it is to be hoped will be, as usual in second editions, with additions and corrections!

But the most noteworthy part of the *Wolverhampton Chronicle* review is the wind-up. Here we discover that our reviewer has not depended on his "own non-professional opinion of the value of the book," but hangs the *onus* of his remarks on the review contained in the *Veterinary Journal* for December last! Thus the *Veterinary Journal* has not only to account for its own failure to do justice to the public as regards "this extraordinary book," but is also responsible for the laudatory eruption of the editor of *The Wolverhampton Chronicle.*

To sum up, however, the three reviews referred to are literally worthless as criticisms; the whole three are utterly void of one single sentence of healthy criticism, being entirely made up of conventional clap-trap and senseless flattery, more to the author's and reader's injury than benefit.

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## THE RIGHTS OF AUTHORS.

By A. J. Murray, M.R.C.V.S., Detroit, Lecturer on Veterinary Medicine, &c., at the State Agricultural College, Mich., U.S.

Veterinary authors write for a rather limited circle, so that they can hardly hope to reap much profit from the result of years of study and labour. This fact has no doubt deterred some who are competent from enriching the literature of the profession. If the veterinary author does not obtain a worthy remuneration for his work, he may at least hope that his reputation will be extended, and that the value and worth of his efforts may even be recognised in other countries than his own. It would be unfortunate for the profession if veterinary authors were deprived of this stimulus.

In this connection, I may mention, that engrossing occupations have for some time prevented me from calling the attention of the profession to the fact that an article entitled "The Castration of Cryptorchid or Crypsorchid Horses," by C. C. Lyford, M.D., published in the *Veterinary Journal* for August,

1879, is to a large extent a translation from the "Précis de Chirurgie Vétérinaire." of Peuch and Toussaint, and yet that Dr. Lyford never even mentions the names of those gentlemen in the article mentioned.

Dr. Lyford is by no means backward in censuring sharply the English authors for their ignorance of this subject, but he has the good nature to say that perhaps their fear of impropriety may have deterred them from attempting the operation. It is much to be regretted that his fear of impropriety did not deter him from sending to the *Veterinary Journal* a mutilated and blundering translation of Peuch and Toussaint's chapter entitled "Castration des Animaux Cryptorchides," as an original article of his own.

Peuch and Toussaint's work is one of considerable research, and the different subjects treated of are described very fully and with great clearness. Owing to Dr. Lyford's evidently imperfect knowledge of the French language he sometimes entirely misapprehends the meaning of those authors. As an example of this I quote from Dr. Lyford's article the following: "However, all crypsorchids are not sterile, as the stallion 'La Clôture,' notwithstanding his testicles being absent from the scrotum, got colts." Now, this is the very opposite of what Peuch and Toussaint expressly state. They say that cryptorchidia may be either inguinal or abdominal, and further that it may be either simple or double; in the simple form only one testicle has descended into the scrotum, in the double form neither of the testicles have descended into the scrotum. When a horse has only one testicle in the scrotum he is styled a monorchid or a horse with one testicle down, and according to Peuch and Toussaint such a horse may be a successful stock getter. This is not so if a horse is affected with double cryptorchidia, as in the case of the stallion La Clôture. I translate the following paragraph from Peuch and Toussaint in reference to La Clôture. "Besides the spermatic secretion is greatly modified, to such an extent, indeed, that it does not contain spermatozoa; so that cryptorchids are unfruitful, as was proved in the case of the stallion La Clôture. This stallion, which was bought by the administration of the stables notwithstanding the apparent absence of testicles, served at Pompadour forty mares, none of whom were impregnated."

In some parts of the article Dr. Lyford translates with tolerable accuracy from Peuch and Toussaint, and the readers of the *Veterinarian* who read French may judge on this matter for themselves by comparing the following extract from Peuch and Toussaint with Dr. Lyford's translation.

*Caractères des animaux cryptorchides.*

Les signes à l'aide desquels on reconnait la cryptorchidie sur le sujet vivant se tire de l'examen de la région scrotal, du caractère générale du sujet et de l'exploration rectale. Ainsi le sujet cryptorchide conserve le naturel du mâle entier; comme ce dermier il entre en érection et manifeste en presence d'une femelle de son espèce, une ardeur et une impétuosité qu'on ne recontre jamais au même degré chez le sujet qui a subi la castration. Mais avant de ce prononcer sur l'existence de la cryptorchidie, il faut tenir compte de l'age du sujet. Chez les solipèdes, les testicules sont generalement descendu du sizième au dixième mois; toutefois, sous ce rapport, il y a dissidence entre les observateurs. Ainsi Van Haelst conseille d'attendre jusqu' à trois ans pour décider si la difformité existe réelement. M. Degive pense qu'en règle générale "la cryptorchidie doit êtrc envisagée comme definitive vers l'âge de deux ans. Ilnenous a pas été donné de contrôler l'exactitude de cette assertion. La question d'âge etant ecartée, l'absence de cicatrices dans la région scrotal indique evidemment la cryptorchidie, mais leur présence ne permet pas toujours de conclure à la non-existence de l'anomalie. Il se pourrait que, dans un but fraudeleux, on ait cherché a en produire. Si' l'on conserve de doutes, il suffit de mettre l'animal suspect de cryptorchidie en rapport avec une femelle, et, s'il est atteint de cryptorchidie, il se comportera comme un mâle entier. Le diagnostic est alors établi. Comme surcroît de preuve, on pourrait examiner le sperme au microscope et constater qu'il ne renferme point de spermatozoïdes.

*Characters of Chrypsorchid Animals.*

The signs by which one recognises such animals is obtained from an examination of the scrotal region, of the general character of the animal, and by an examination in exploring the rectum. Thus, the crypsorchid has the character of the entire male horse, shown by erection of his penis, and all that ardour and impetuosity which is not met with to the same degree in a castrated horse. But before pronouncing upon the existence of the crypsorchid, it is necessary to take into account the age of the subject. In the solipeds the testicles are generally down from the sixth to the tenth month. However, regarding that there have been different opinions held amongst writers on the subject. Thus, Van Haelst advises to wait three years before deciding; M. Degive thinks that, as a general rule, the animal should be regarded as a cryptorchid after two years of age if the testicles have not appeared in their normal situation. The question of age being laid aside, the absence of cicatrices in the scrotal region evidently indicates the cryptorchid; and yet their presence does not permit us to say that the anomaly does not exist, as they may be fraudulently made there. If one has doubts on the subject, it is generally sufficient to put the horse with a mare, when he will most likely conduct himself like a stallion. A further proof is the finding of spermatozoa in the fluid ejaculated by such animals.

Now any one would conclude, on reading Dr. Lyford's article, that he had studied what Van Haelst, Degive, Lenglen, Goubaux, and d'Arboval had written on the subject of cryptorchidism, but it is evident that he only knows of those writers through the medium of Peuch and Toussaint's work. They

have evidently made a thorough study of what the French and Belgian writers have written on the subject of cryptorchidism, and have honorably mentioned the names of the writers whose writings they have quoted or made use of. It would have been well for Dr. Lyford if he had followed such a worthy and honorable example.

I observe from a number of the *American Veterinary Review*, that Dr. C. C. Lyford, of Minneapolis, is one of the Faculty of the North-Western Veterinary College, which is an institution of the State of Minnesota, and from a note in the *Veterinary Journal*, that his article on Cryptorchidism was read before the Montreal Veterinary Medical Association before being published.

Since Bourgelat founded the first veterinary college in France similar institutions have been instituted in almost every European country, and recently several in America, and an honorable rivalry has existed among different nations in the cultivation of veterinary science. Let us hope that the rivalry between veterinarians of different nationalities may continue to be an honorable one, and that we may give honour to whom honour is due.

## Pathological Contributions.

### PLEURO-PNEUMONIA.

Reports from the Netherlands state that between the 3rd and 30th of last December, only one case was detected in the living animal, this occurred in the Province of North Holland; 13 cases were, however, detected in animals which were slaughtered in the Spoeling district.

From America we hear that inoculation is being practised in Maryland, 6 cases of this disease were reported in that State during the month of last December.

### FOOT-AND-MOUTH DISEASE.

This disease is still prevalent on the Continent, it has been reported from Italy and Switzerland, and large numbers of affected animals have been landed recently in this country from France and Germany.

The extension of the disease in England has led to orders being passed by the Privy Council which practically stop the sale of store stock in nearly every county in England. It is not, however, expected that much inconvenience will arise in

consequence to the farming community, as at this season of the year very few persons are purchasers of animals of this description.

## "PINK-EYE."

Reports of this disease have been received from the Counties of Durham and Northumberland, and quite recently it has appeared in the Counties of Derby and Notts. In Derby the Corporation have, it is stated, lost a number of the horses employed in the city. We should be glad to receive any information which the members of the profession may possess, of the symptoms, *post-mortem* appearances, and nature of this disease.

## Facts and Observations.

Veterinary Examination of Stallions.—The English Cart Horse Society, which holds its Fourth Annual Meeting on the 27th February, at the Agricultural Hall, Islington, has settled the important question of ascertaining the soundness of stallions in a plain common-sense manner, worthy of a society instituted for the purpose of improving the breed of cart horses. By condition 10, "A veterinary surgeon will attend at the show to inspect all the animals *before the judges make their final award;* and no award will be made to any animal which is not free from disease detrimental to breeding sound and healthy stock." Under this condition, a customer for purchasing or hiring any stallion exhibited at the Cart Horse Show may depend that all the stallions passed by the veterinary referees, whether winners of prizes or not, are sound.—*Live Stock Journal.*

Unregistered Dairy Farmers.—At Nantwich a farmer was summoned by the county police authorities for being an unregistered milk-seller. The defendant was in the habit of sending milk to Manchester, and it was necessary that he should be registered. The defence urged was an entire ignorance of the Act of Parliament compelling dairy farmers to register. Fined 20s. and costs.—*Medical Times and Gazette.*

Appointment of a Veterinary Inspector. — His Excelleney the Governor in Council has been pleased to appoint Mr. Thomas Chalwin, M.R.C.V.S., Eng., to be Government Veterinary Surgeon for Adelaide, S. Australia.

# THE VETERINARIAN, FEBRUARY, 1, 1883.

Ne quid falsi dicere audeat, ne quid veri non audeat.—CICERO.

## INTERNATIONAL VETERINARY CONGRESS IN 1883.

It is announced by Dr. Wehenkel and Professor Thiernesse that a fourth Session of the International Congress of Veterinary Surgeons will be held at Brussels in the beginning of September, and the Belgian Government have invited the English Government to send a representative to the Conference. Among the subjects to be discussed are—1. The conclusions which were arrived at when the Congress met at Zurich; are those conclusions to be modified? If so, in what direction? 2. How can contagious pleuro-pneumonia be differentiated? What are the means of arresting its progress? 3. What are the characters of bovine tuberculosis, and, assuming the reality of the alleged influence of the meat of diseased animals on man, how is that influence manifested?

We may remark that an attempt to revive the International Congress a few years ago failed for some reasons which did not transpire, but as no meeting has been held since the one at Zurich, we may anticipate that the present scheme will possess a sufficient amount of novelty to ensure its success.

## Translations from the Foreign Journals.

### INOCULATION OF ANIMALS OF THE BOVINE SPECIES FOR THE PREVENTION OF CONTAGIOUS PLEURO-PNEUMONIA BY INJECTION INTO THE VEINS.

By Professors THIERNESSE and DEGIVE.

IF there exists a scientific movement which deserves to be noticed and approved, it is assuredly that which we see at this present time becoming known among the learned men of different countries, in order to arrive at the solution of various questions relating to the nature and prophylactic treatment of contagious diseases.

In this general movement, we especially remark the experimental investigations which are connected with inoculation as a preventive of these diseases.

The efficacy of inoculation for a long time has been an established fact for smallpox among human beings as well as for sheep.

Thanks to recent and well-known investigations made by M. Pasteur and those of his school on the one part, as well as those of MM. Arloing, Cornevin, Thomas, Toussaint, and Chauveau on the other part, the same results have been established in reference to chicken cholera, anthrax, and symptomatic anthrax in domestic animals.

A similar result has been obtained in a no less certain manner in favour of the inoculation of cattle for contagious pleuro-pneumonia suggested by our respected colleague, M. Willems, and carried out with success in different countries since 1852.

To the number of facts the result of experiments which tend to show the efficacy of this prophylactic, must be added a certain number of others, the nature of which appears to us to be such, that the question of the principle ought in the present day to be fully accepted.

From the results again recently observed by MM. Willems and H. Bouley, and several other practitioners; and in the presence of fresh results, which we have ourselves proved and which we are about to report, we do not think that any one could in the future doubt the reality of the immunity which is communicated to the system by inoculation with the liquid virus of contagious pleuro-pneumonia.

But if this question is sufficiently clear from a scientific point of view it cannot be said to be so from a practical point of view. In fact, it is not sufficient to prove that the inoculation for pleuro-pneumonia possesses a prophylactic virtue, it is above all important that its application should be accepted as really beneficial, that is to say, economical.

Under this head there still exists more than one point to be cleared up. The practice of inoculation up to this time, and as it is now performed, still presents many difficulties of a rather serious character.

It is known first of all that the operation is not without danger to the animal operated upon; then, if one may judge from a certain number of observations which have been made, its preventive action is not constant nor, consequently, altogether a certainty.

It is with the object of satisfying this twofold desideratum, that the Agricultural Society of Melun has taken the initiative in carrying out a series of experiments; these have been placed

under the direction of a commission composed of such a class that one may from to-day augur for the best as to the results which will follow. Is not the presence of M. Pasteur at the head of this Commission sufficient to arouse the best expectations.

While waiting these results we believe we ought to make known those which we have ourselves obtained in consequence of certain experiments connected with the elucidation of the important question of which it treats.

These experiments have been suggested to us by the ideas of M. H. Bouley, expressed on the subject of researches of MM. Arloing, Cornevin, and Thomas, relating to symptomatic anthrax.

"These experimenters have demonstrated, says the learned professor of the museum, that the microbe of symptomatic anthrax produces different effects when the cellular tissue is inoculated, or it is introduced into the blood by injection. When the cellular tissue is inoculated the effects consequent upon it are mortal. Introduced into the blood the virus merely produces phenomena which are generally ephemeral, but which are in effect lasting, as immunity is acquired by the organism which hereafter is capable of withstanding with impunity the inoculation of the cellular tissue; and no bad effects follow. It therefore becomes possible to vaccinate against symptomatic anthrax by means of the veins with its proper microbe, on condition that care is taken to avoid inoculating the cellular tissue at the time of the operation. One might suggest, adds M. H. Bouley, from these experiments in the School of Lyons on symptomatic anthrax, to renew the endeavour to inoculate against pleuro-pneumonia by the veins."

We have renewed at the Veterinary School of Cureghem those points suggested by M. H. Bouley, by means of some young bovine animals, which one us, M. Thiernesse, used in his lectures subsequently on comparative anatomy.

It is known that young subjects, besides being less expensive, afford this important advantage, as observed by M. Pasteur, that they are easily inoculated with the virus of pleuro-pneumonia.

We have proved that injection into the veins of this virus produces effects analogous to those obtained by the experimentalists of Lyons with the virus of symptomatic anthrax.

Before giving an account of these results which have been observed in each animal operated upon by us, we would first point out, once for all, by what process we have practised the important operation (intravenous injection), the value of which we have to determine.

The virulent liquid has been collected from different lungs

which have been kindly procured for us by M. Van Hertsen, V.S., Chief Inspector of the abattoir of Brussels and Limburg, &c. It was taken at the time of the operation from a portion of the organ which was totally free from any evidence of septicæmia. After having cut the pulmonary tissue in several directions the serum was pressed out by the hand. The liquid thus obtained was somewhat cloudy and sanguineous, was afterwards filtered through fine linen, and then put into one of Pravaz syringes, two grammes size.

The animal being thrown in a convenient position on straw, we cut the hair round the outside of the jugular vein near the throat on one side or the other; an assistant placed his hand on the lower part of the external jugular so as to distend it. This being done, the skin is pinched up in order to make an incision, then we detach the adjacent cellular tissue in order to uncover completely the forementioned vessel. We then take the syringe previously filled, having the needle canula attached; we place this transversely into the wall of the extended vein and inject the materials slowly. When this is completed the pressure is removed from the vessel.

A twisted suture made with two pins completes the operation.

This being completed, we pass to a brief description of the experiments which we have made.

Case No. 1.—A white home-bred heifer two years old, and apparently healthy.

*First experiment.*—On the 14th February, 1882, we injected into the left jugular vein two grammes of the virulent liquid taken from the lungs of an animal recently slaughtered, and known to be infected with pleuro-pneumonia. Except a slight increase of temperature, from 0·2° to 0·3°, the general condition of the animal remained the same.

The wound produced by the inoculation healed regularly and without any inflammatory results.

*Second experiment.*—In order to ascertain if the preceding operation had invested the organism with an immunity against an inoculation of a similar nature, made in a part which would produce death, we injected into the subcutaneous cellular tissue of the dewlap two grammes of freshly-taken virus of pleuro-pneumonia.

This injection was made on the 5th May, 1882, with the same syringe as was used in the intravenous injection. To carry this out we first of all made incisions in the skin within a small space, which enabled us to implant the needled canula in the adjacent tissue below.

A slight transient infiltration of the injured tissues producing a flattened enlargement about the size of an inch was the sole result of this dangerous inoculation.

After eight days no trace remained.

*Third experiment.*—On 23rd May a similar inoculation was made on the opposite side of the animal in the same spot, producing similar results.

*Fourth experiment.*—On 3rd August we performed a third dangerous inoculation on the left side of the dewlap. This was made with the fluid obtained from a tainted lung, taken from an animal which had been slaughtered more than two days.

On the following day, 4th August, inflammatory œdema was present round the inoculated spot. The two following days the tumefaction increased, and became as large as a man's fist. On the fourth day this enlargement remained the same; it was soon observed to be getting smaller and softer. At the same time that it diminished in extent it became more prominent and slightly fluctuating in its centre. Left to itself, it completely disappeared within three or four weeks without suppuration.

Meanwhile the general condition of the animal did not manifest any visible disturbance.

With regard to the results obtained after the preceding operation, one may inquire how it happened that the inflammation produced by this third dangerous inoculation was more decided than that produced by the two previous ones. This can be explained in a most simple manner, it appears to us, if one considers under what conditions the liquid employed for these operations were found. The liquid employed in the last inoculation evidently contained septic elements, together with those of the pleuro-pneumonic virus.

Case No. 2.—Home-bred bull, piebald, two years old, in good health.

*First experiment.*—On 28th February, 1882, injection into the left jugular vein of two grammes of fresh peripneumonic virus.

On 4th March, in the morning, a slight inflammatory enlargement was observed at the part where the inoculation was made.

Between the 4th to 16th March this enlargement became thicker and greater at the place where the inoculation was made, including a large part of the left side of the face and the lower part of the neck and shoulders. Meanwhile the edges of the cutaneous wound separated the one from the other; a thick liquid, sero-purulent, slightly blood-stained, exuded.

By way of lessening and modifying the inflammatory process we prescribed two applications of *feu belge* (resolvent liniment) phenic (4 per cent. of acid). These applications, followed by

a solution of corrosive sublimate (three grammes in *collodion* thirty grammes), soon arrest the progress of the malady. After a few days of a stationary condition the congestion commenced to diminish.

While the discharge from the wound continued we observed under the skin the presence of a deposit of a certain size formed by the exudation, hard, greyish, of a fibrous nature. This deposit was twice removed, a few days intervening, by means of a large cutaneous incision. The solution of continuity is washed frequently during the day with phenic water, 2 per cent. In less than a month this wound was completely closed.

At the commencement of these inflammatory phenomena, and during their time of progress, one has observed signs of a feverish reaction. From 39·2° the temperature rose to 40·4°. There was at the same time a notable quickening of the pulse, and a perceptible falling off of the appetite.

But this general reaction, evidently consequent upon the external inflammation, was of short duration; it was seen to quickly diminish and completely disappear, as soon as the progress of local affection was stopped.

In our opinion the accidental symptoms which appeared were due to the introduction of a drop of virulent liquid in the cellular tissue which surrounds the jugular vein. We shall point out presently how to prevent this accident.

*Second and third experiments.*—On the 5th and 21st of May, 1882, an injection was made on both sides of the dewlap in the subcutaneous connective tissue of 2 grammes of fresh peripneumonic virus.

In these two cases the dangerous inoculation only produced a very moderate inflammatory enlargement, hardly attaining the size of a pigeon's egg. Absence of all general reaction was apparent.

Case No. 3.—Home-bred heifer, piebald, aged 18 months, in good health.

*First experiment.*—3rd of March, 1882, injection into the left jugular of two grammes of fresh virulent serum.

This inoculation was followed by a slight reactionary fever lasting scarcely three to four days. The wound healed without any decided inflammatory appearance.

*Second and third experiments.*—The 5th and 21st of May, 1882, two grammes were injected of fresh pulmonary exudation under the skin of one and then of the other side of the dewlap.

Like the preceding case, inflammation arising from the dangerous inoculation was scarcely perceptible.

*Fourth experiment.*—The 3rd August, fresh inoculation in the

region of the dewlap, on the right side, with the same liquid used in the third dangerous insertion on subject No. 1, liquid obtained from a sufficiently tainted lung procured from an animal slaughtered more than two days. On the following day there exists an evident inflammatory œdema at the point of the inoculation, on the two following days the enlargement increased, and threatened to assume serious proportions.

Friction is made with "*feu belge*" (resolvent liniment) phenic (2 p. c. of acid), immediately the inflammatory process stops it diminishes, and completely disappears in about fifteen days.

Case No. 4.—Home-bred heifer, white coat, black head, one year old, in good health.

*First experiment.*—The 4th March, 1882, this animal received, like the preceding ones, two grammes of fresh peripneumonic virus into the left jugular vein.

In consequence of this inoculation a very small increase of temperature was observable, of 0·2° to 0·3°. The closing of the wound was effected without any special peculiarity.

*Second and third experiments.*—The 5th and 21st of May, 1882, a dangerous inoculation was made on the sides of the dewlap with the same liquid used in inoculating subjects 1, 2, and 3, on the same days.

As on the last cases this injection gave rise to a local reaction hardly observable and of short duration.

*Fourth experiment.*—The 3rd of August, third dangerous inoculation on the right side of the dewlap. The liquid used was the same as was used for the inoculation made the same day on subjects 1 and 3.

A local inflammation altogether similar to that which was observed in subject No. 1 was the only consequence of this last inoculation.

Case No. 5.—Home-bred heifer, piebald, about 10 months old, in good health. On the 12th of June, 1882, we injected under the skin, on the right side of the dewlap, two grammes of fresh peripneumonic virus.

After two or three days there appeared at the place of the inoculation a slight inflammatory œdema. On the following days the tumour increased and extended in all directions, and finished by attacking the regions of the breast and the right axilla. A severe lameness of the right fore-leg is the consequence of the extension of the disease to the latter region.

The general condition though not much influenced at first, appears to be afterwards notably affected; the animal becomes dull, loses its appetite, and sensibly becomes thinner; it died on the 30th of June, eighteen days after the inoculation.

At the autopsy, besides a considerable serous infiltration of the injured tissues more or less consequent upon the inoculation, we observed a slight congestion of the mucous membrane which covers the terminal portion of the small intestine and a limited traumatic pneumonia, owing to the presence of a bit of a sewing needle. We noticed that in the injured part of the lung the connected interstitial tissue was free from all the exudative lesions.

Case No. 6.—Home-bred heifer, piebald, about eleven months old, in good health.

On the 2nd of August, 1882, injection was made in the subcutaneous cellular tissue on the left side of the dewlap of two grammes of exudation taken from the same lung, but one day previous to that which furnished the virus used on the 3rd of August for the third dangerous inoculation on subjects Nos. 1, 3, and 4.

The effects following on this operation were the exact reproduction of those which were observed in the former case. An exudative inflammation, gradually progressing, caused death after a duration of fourteen days.

On making an incision in the carcase a considerable portion of the tissues were infiltrated with serum; we observed at the place of inoculation the existence of a sack containing about forty grammes of thick liquid, bloody, of a greyish colour, slightly tinted with red.

The other parts of the body had no manifest alteration.

Reviewing the experiments which we have described, we have arrived at the following facts:

1st. That two grammes of the virus of pleuro-pneumonia has been injected into the venous system of four young cattle.

2nd. That this injection has only produced among three of them a slight feverish reaction of short duration.

3rd. That in the fourth animal the inoculation caused an exudative inflammation very decided, and produced a feverish reaction of some intensity, but not of a serious nature.

4th. That the two first dangerous inoculations, performed with the same liquid on the first four animals in the cellular tissue, made in a part which would produce death—the dewlap—caused only among them all a very slight inflammation.

5th. That a third dangerous inoculation, performed upon these said animals, produced on one of them a slight inflammatory œdema, and in two others a more decided enlargement of a phlegmatic character, but not of a serious nature.

6th. That the insertion of the virus performed in the same dangerous region on two young animals who had not under-

gone any previous inoculation caused in both animals serious inflammatory results, increasing in intensity and shortly causing death.

Such are the results of certain experiments which we have been enabled to make. The teachings which they contain clearly present themselves.

These experiments demonstrate :

*a*. That the injection into the veins of pleuro-pneumonic virus in two-gramme doses is not at all dangerous if care is taken that not a single drop of this liquid falls into the cellular tissue.

*b*. That this infusion possesses the same properties as the caudal inoculation approved of by Dr. Willems, that is to say, that it invests the organism with a real immunity, proved by the inoculation repeated two or three times in a part which would produce death.

*c*. That the immunity may be perfectly obtained, as one of us has proved in the *séance* of 29th July, when replying to M. J. Guérin, and afterwards noted by M. H. Bouley at the last assembly of the Medical Academy of Paris.

Considering the importance of these results we intend to repeat our experiments on a sufficient number of animals. It will be necessary that the Government should furnish us with the means to carry out this intention. As it cannot be carried out without considerable expense we hope that it will entertain our proposal, and that shortly we may have a more complete report to make to the Academy.

In the new experiments which we have in view we propose to find out a mode of operating which shall be carried out with simplicity and facility, so as to be available in ordinary practice.

But it appears to us possible to make such modifications as will enable us to arrive at very satisfactory results. Thus, instead of operating upon an animal lying down, it might be performed with greater advantage on an animal upright. Having him conveniently in subjection in this position, we think that, with a very small incision in the skin, the needle canula might be plunged directly into the vessel. To avoid all contact of the virulent liquid with the cellular tissue one might use a thin leaf of caoutchouc of a certain size. One would pass then the canula through the leaf and introduce it direct into the vein, and then adapt the syringe for the purpose of injection. If a drop of the liquid escapes from the mouth of the needle canula or from the corresponding aperture of the syringe it would necessarily fall on the leaf of caoutchouc, and could not reach the wound, since it would be completely protected by this piece of caoutchouc.

## Extracts from British and Foreign Journals.

### STATISTICS OF HYDATID DISEASE.

*Continued from p. 37.*

*Hydatid disease in Australian Colonies.*—I think that most of the intelligent public of Australia have known or heard that hydatid disease is a common one in this southern Britain, but hitherto no extensive investigation into the prevalence and causes of this disease has been undertaken in Australia. Now, as this malady is theoretically, at least, perfectly preventible, and as, moreover, it may, I believe, be practically reduced in extent, I think that the entire subject is worthy of careful study and close investigation. Of course the first step in any such inquiry is to ascertain as far as possible the extent and local distribution of the disease; and in the case of Australia, as in that of Great Britain, we may hope to get reliable data from—1st, the mortality returns of the various colonies; and 2nd, the records of the hospital in each province. I mentioned my desire to the Hon. W. Morgan, who was Chief Secretary of South Australia at the time I commenced this work, and he most kindly offered to use his influence with the Governments of the other colonies to further my inquiry. I beg to offer my most cordial thanks not only to Mr. Morgan, but also to the Hon. J. C. Bray, who has also greatly aided me. Through the kind influence of our two Chief Secretaries I have also received the greatest assistance from Mr. Graham Berry and Sir Bryan O'Loghlen in Victoria, and from Sir Henry Parkes in New South Wales. Equally ready and courteous help has been given by the Governments of Queensland, New Zealand, and Tasmania. Not only have the Governments of all the colonies given their powerful, and indeed indispensable aid, but the hospital officials and Public Registrars have ungrudgingly and carefully taken infinite pains to supply the facts required. I cannot too gratefully acknowledge my obligations to my fellow-workers in this cause, and I can only earnestly hope that great public good will result from the publication of the facts supplied by them. I shall first draw your attention to the hydatid statistics of the various colonies and then I shall endeavour to point out the causes of the striking prevalence of the disease in some of them. From all the colonies of Australasia replies to my questions have been received, but as might have been expected, the amount of

information obtained is not equal in all cases. Thus I may discuss Western Australia very briefly. In March, 1878, the Colonial Secretary wrote that he regretted his inability to supply information as to deaths from hydatid disease, because, under the Registration Act of this colony it is not compulsory on individuals registering deaths to produce the certificate of a professional man, consequently causes of death, in most instances, are recorded in general terms, and it would be impossible to render any return of the kind required." Thus I may dismiss Western Australia very briefly. As regards Victoria, New South Wales, Queensland, South Australia, New Zealand, and Tasmania, the case is different.

*Victoria*.—Before giving you the statistics of the province I cannot refrain from expressing my admiration of the exhaustive character of the returns and of the promptitude with which they were supplied. The details of official records in Victoria must be as near perfection as possible. In the first place let me remind you that, by the census taken in 1881, the population of Victoria amounted in round numbers to 862,000 souls, of whom rather more than one half were males. The mean annual mortality of the colony has lately been 13·5 per 1000 inhabitants. And now as regards the number of deaths attributed to hydatid disease. From the Registrar-General's returns it appears that during the twenty years from the commencement of 1862 to the close of 1881, 584 persons died from hydatids. Of these there were of males 338, of females 246—total, 584; and during the fourteen years, 1868 to 1881, it appears that 2·98 per 1000 of all the deaths in the province were caused by hydatids. I will not inflict upon you the details of the annual figures, but I wish to mention that upon the whole there has been during these twenty years a constant but somewhat irregular increase in the mortality from hydatids with advancing time. This is particularly conspicuous when we compare the four quinquennial periods embraced within the twenty years, thus:—First quinquennium, 1862 to 1867, 59 cases; second, 1867 to 1872, 112 cases; third, 1872 to 1877, 182 cases; fourth, 1877 to 1882, 231 cases; total, 584 cases. This steady and gradual increase is evidently due to one or both of two causes, viz.:—Either hydatid disease is becoming more prevalent in Victoria or the Registrar-General is being more accurately informed as to the true causes of death. But of course it must be borne in mind that the population of Victoria has increased greatly during these twenty years, thus:—Population of

Victoria, 1862, 554,358 souls; 1882, 862,346 souls. But, then, in the last quinquennium there were nearly four times as many deaths from hydatids as in the first quinquennium, whilst the population was not nearly twice as great, probably only about half as much again. As regards the ages of the victims no age was exempt; the child, the adult, the old, all succumbed to this parasite. Thus under ten years of age there were 36 deaths; from ten to twenty, 57; from twenty to thirty, 89; from thirty to forty, 100; from forty to fifty, 109; from fifty to sixty, 73; over sixty years of age, 32; ages not stated, 4; total, 500. These numbers include the deaths in the fourteen years 1868 to 1882. I have not the data as regards age prior to 1868. From these figures it will be seen that the number of deaths increases steadily with advancing age up to fifty, afterwards the numbers diminish. This is not because people are less liable to hydatids after fifty, but because the greater proportion of people die before reaching that age. Now as regards the data supplied by the hospital records of Victoria. I have received returns from the following hospitals:—Alexandra, Alfred, Ballarat, Beechworth, Belfast, Castlemaine, Clunes, Creswick, Daylesford, Dunolly, Geelong, Heathcote, Horsham, Inglewood, Kilmore, Kyneton, Malden, Mansfield, Maryborough, Melbourne, Pleasant Creek, Portland, St. Arnaud, Sale, Sandhurst, Swan Hill, Wangaratta, Warrnambool, and Woods Point. I need not inflict upon you the details of these returns, but I shall pick out those facts only which are of general interest. In some of these institutions no cases of this disease were recorded in the books. This was the case at the Belfast, Maldon, Mansfield, Swan Hill, and Warrnambool hospitals. In the remaining hospitals, however, no fewer than 1,001 cases had been treated. Of these the result was unknown in 373; in 206 instances death was known to have resulted; so that we can reckon the mortality of hydatid disease, even under the best available treatment, as at least 20 per cent., and personally I am convinced that this is much below the real figure, for many cases are discharged from hospitals and leave the care of their medical advisers, which are apparently cured, and yet come back in a few months or years worse than ever. Now, taking the lowest estimate, *i.e.* 20 per cent., as fatal, and remembering that the Registrar-General's report for twenty years gave 584 deaths from this disease, it follows that in Victoria there were about 3000 cases of hydatids during the twenty years, 1861 to 1882. I think, gentlemen, that this estimate of preventible disease is sufficiently startling, and

not only justifies, but urgently invites inquiry. And yet one case of smallpox would receive more attention than these 3000 sufferers have done—at any rate, at the hands of the official guardians of the public health. As regards the proportion in which the two sexes were attacked, some information may be given:—Sex not stated, 171 cases; males, 493; females, 337; total, 1001. There was thus a preponderance of cases in males, but as there had been a considerably larger number of males than females in Victoria until quite lately, there cannot be much importance attached to the disparity of sexes attacked by hydatids. The proportion in which the different organs of the body were attacked was very interesting; but as I shall consider this point in connection with the total number of cases occurring in all the colonies, I need not discuss it here. It is important to notice that, if we take the hospitals of Victoria as a whole, there was about one case out of every 175 of the total in-door patients treated suffering from hydatid disease. I may remind you that in the four English hospitals the proportion was one hydatid out of about every 900 patients, so that it appears that hydatid disease is more than five times as common in Victoria as in the four English hospitals. But the different hospitals of Victoria itself did not show a like proportion of cases. Thus no cases at all, as I have already stated, were recorded in the Belfast, Maldon, Mansfield, Portland, Swan Hill, and Warrnambool Hospitals, and yet between them they had 5639 in-patients during the periods over which their returns extended.

*South Australia.*—According to the census taken in April, 1881, the total population amounted to 279,865—Males, 149,530; females, 130,335=279,865. The death-rate in 1881 was 13·90 per 1000. The Registrar-General's returns, for which I am indebted to the kindness of J. F. Cleland, Esq., extend over the sixteen years from 1866 to 1881. In six of these years, viz. 1866-67-68-69-70 and 72, no deaths were returned as due to hydatids. In 1871 there was returned 1 death; in 1873 there were 3 deaths; 1874, 1; 1875, 2; 1876 and 1877 together, 11; 1878 and 1879, 3; 1880 and 1881, 13; total, 34. So that for all the sixteen years in question there were only 34 deaths attributed to this parasite. Now, if we take the last ten years—*i.e.* from 1872 to 1881 inclusive—we find that there were 33 deaths from hydatids out of a total of 34,431 deaths (*Statistical Register* for 1881, p. 25) occurring during the same period; so that hydatid disease is credited with having caused about one death out of every 1043 during the last ten years. I am inclined to think that this is considerably below the number of

deaths that actually occurred from this parasite. And now as regards the data supplied by the records of the various hospitals in the province. Of such institutions there are nine, viz. the Adelaide, Mount Gambier, Port Adelaide, Port Augusta, Port Lincoln, Wallaroo, Kapunda, Blinman, and Burra Hospitals. Of these the only ones which are large enough to supply any information on this subject are the two first named. I am indebted to Mr. E. H. Hallack for the very exhaustive returns of the Adelaide Hospital, which extend over a period of thirty years, viz. 1852 to 1882. During this time 158 cases of hydatids were recognised and treated. There were in all under treatment as in-patients 36,556 persons, so that about one case of every 245 (exactly 244·68) in-patients was hydatids. As regards the results of the treatment, we find that in thirteen cases the results were not given; of the remaining 145, twenty died whilst in hospital, being at the rate of 12·66 per cent.

*The Mount Gambier Hospital.*—I have to thank Dr. Jackson, lately Assistant Colonial Surgeon, for the statistics of this hospital during the seven years 1873 to 1880, and they are very significant. During these seven years 36 cases of hydatid disease were under treatment. During the same period there were of in-patients 1905, so that no less than one case out of every 53 (52·9) was hydatid disease. I am convinced that out of Iceland no place in the known world is so badly infested with this parasite as the south-eastern district of this colony, which supplies the majority of the inmates of the Mount Gambier Hospital. As I shall revert to this point afterwards, I need not discuss it here. In order to strike an average for the hospitals of South Australia, we must add together the results of the Adelaide and Mount Gambier Hospitals. This will show us that about one case out of about 198 in-patients suffered from hydatids.

*Hydatid Disease in Queensland.*—According to Hayter the population of Queensland on December 31st, 1880, was 226,077 persons. The average death-rate for the decade 1869-79 was 17·27 per 1000. It appears that the published statistics of this colony did not contain any particulars respecting deaths from hydatid disease prior to the year 1878, so that the only data at my disposal have extended over the four years 878 to 1882, and during this time only five deaths from this cause were registered. So that only about one death out of 6000 arose from hydatid disease in Queensland. In the hospital statistics of Queensland returns were sent from the following hospitals:—Bowen, Ipswich, Springsure, Stanthorpe, Charters Towers, Toowoomba, Georgetown, and Mary-

borough. In five of these no cases of hydatids had been met with, viz., Bowen, Charter Towers, Georgetown, Maryborough, and Springsure. As regards the Ipswich hospital, the return comprises the twenty years 1860 to 1880. During this long period only two cases of hydatid disease were treated. The average number of in-patients is stated to be 300 per annum. The Stanthorpe hospital's record extends over the five years 1875 to 1880. Four cases only were observed, and one of these was not a hospital case. In the Toowoomba hospital books only one case of hydatids appears. Thus it will be seen that the data supplied from Queensland are too scanty to permit any numerical estimate to be made, but they show conclusively that the disease is comparatively rare in that colony.

*Hydatid Disease in Tasmania*—The population in December 31st, 1880, was 114,762. The mean death-rate for the decade 1869-79 was 15·59 per 1000. First, as regards the deaths registered as due to hydatid disease. In March, 1878, the Colonial Secretary wrote that during the ten years immediately antecedent to 1878 "no deaths from this disease were registered." However, in 1878 there were 2 deaths; 1879, 2; 1880, 1; 1881, 1; total, 6 deaths. So that in the last four years there have been 6 deaths from that cause. This was at the rate of 0·871 per 1000 deaths. Returns were received from the Hobart, Launceston, and Campbelltown hospitals. There was no record of any case of this disease in either the Launceston or the Campbelltown hospital. The returns of the Hobart hospital comprise the four years 1878 to 1881 inclusive. There were thirteen cases treated suffering from hydatids. During the same period there were 4,223 in-patients, so that in the four years under our notice about one case out of 528 total in-patients was hydatid. As by some misunderstanding I have not been able to learn the total number of in-patients treated at the Campbelltown hospital I am unable to give the general hospital hydatid-rate for the colony, but I have reason to believe that not more than one out of every 1000 cases treated is of this nature.

(*To be continued.*)

## SLAUGHTERING ANIMALS.

The Council of the London Model Abattoir Society proposes to consider the electric with other painless methods of slaughtering animals. Meanwhile, it is pointed out that the

suggestion for rapid killing of animals by means of electricity has already been tried. Some years ago, Dr. Richardson made use of the large induction coil at the Royal Polytechnic Institution for testing the question, and killed several sheep and other animals by the electric shock. The experiments led to results which were to a certain degree promising, and to a certain degree disappointing. The electric discharge always succeeded in striking the animals into instant insensibility, and in many instances killed them outright; but in other instances, after the temporary production of all signs of death, there were indications of recovery, so that death had to be completed by other means. It was also found that when animals intended for human consumption as food were killed by the shock, some parts of the flesh were marked with dark lines and spots, which to a considerable extent interfered with the sale of the carcases. Lastly, it was found that the dangers to the workmen attendant on the systematic introduction of the method into general use, afforded an important reason for not recommending its universal adoption.—*Med. Times and Gazette.*

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## PRESERVATION OF MEAT.

"A NEW food antiseptic, in the shape of carbonic acid, has recently been submitted to trial in Germany, and the result has been so far satisfactory that further tests are to be made. Professor Kolbe, of Leipsic, conducted the experiments by hanging pieces of beef, including fat and bone, in cylindrical tinned iron vessels, which were kept in a warm room of the laboratory, where the temperature at mid-day rose to 32° C. Each piece was hung from the crossbar; a plate for dropping liquid stood below; just over this was a tubular passage for entrance of carbonic acid; the cylindrical lid of the vessel entered an annular trough holding glycerine, and had a tubulure in the middle. When nearly all the air was supposed to be driven out through the latter tubulure by the entering gas, the elastic tubes connected to both tubulures were pinched with screws. After eight days in the vessel the beef was not distinguishable from fresh beef in aspect or taste after cooking, and the gravy was like that from fresh beef. After a fortnight the beef had become somewhat grey externally, and only a fine palate could distinguish the gravy from that of fresh meat. Sometimes beef and gravy had a weakly acid taste, which was easily removed with a little carbonate of potash. After three weeks the beef was of the

same good quality, only softer than fresh beef, and requiring less time to cook. It was quite free from bad smell even after four to five weeks. It is noteworthy that mutton, under like treatment, began to smell bad after eight days; nor could veal be kept as long as beef."—*Med. Times and Gazette.*

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## THE ACTUAL CAUTERY AND THE THERMO-CAUTERY.

At a clinical lecture at La Charité, M. Desprès observed that punctuated cauterisation, performed by means of a small cautery heated to a dull red, with which the parts wherein it is sought to establish a revulsion are gently touched in succession, has, since the time of Nélaton, entered into general practice—advantageously, in many instances, replacing blistering. Of late this form of cauterisation has been performed by means of the thermo-cautery; but this practice is not so good as the one which it displaced. First, platinum requires a much higher temperature to redden it than iron; the consequence of which is that the thermo-cautery produces a much more severe burn than the iron cautery—the parts touched being burned to the fourth degree, and the heat radiating beyond them. Consequently, elongated burns are produced, which leave indelible cicatrices. Secondly, the pain produced is very severe, while patients bear a repetition of the actual cautery with little or no fear. They always give the preference to this.—*Gaz. des. Hôp.*, January 11th.

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# ROYAL COLLEGE OF VETERINARY SURGEONS.

## QUARTERLY MEETING OF COUNCIL, HELD JANUARY 5TH, 1883.

G. Fleming, Esq., in the chair.

*Members present.*—Sir F. Fitzwygram; Professors Brown, Robertson, Walley, Williams; Messrs. Anderton, Ball, Blakeway, Cartledge, Cartwright, Collins, P.V.S.A.; Cox, Dray, Gowing, Greaves, Harpley, Perrins, Simcocks, Whittle, Woods, Wragg, Taylor.

The notice of meeting was read.

The minutes of the previous quarterly meeting were taken as read.

Letters were read from Professor Simonds and Mr. Reynolds, and a telegram from Mr. Simpson, regretting their inability to attend.

Presentations to the library were announced from Professor Brown, F. F. Collins, Esq., and the Editors of the veterinary and medical journals.

The thanks of the Council were accorded to those gentlemen.

Diplomas were granted to Messrs. J. Smith, P. Hampton, and G. S. Heatley, holders of the Highland and Agricultural Society's Certificate.

Letters were read from the recently appointed Examiners, acknowledging the honour of their election.

A letter from Dr. Dunsmure, resigning his office as Secretary to the Scottish Section of the Court of Examiners.

The *President* stated that on the receipt of Dr. Dunsmure's resignation he had selected Mr. Rutherford, of Edinburgh, to act as Secretary *pro tem.*

A vote of thanks was accorded to Dr. Dunsmure for his past services, and the Secretary was also directed to convey to him the condolence of the Council at his recent bereavement.

It was agreed that Mr. Rutherford's appointment be confirmed forthwith, and that his allowance as Secretary be the same as that of the retiring one.

The Examinations were fixed to commence in London on the 8th and in Scotland on the 15th inst.

A letter was read from Mr. Nicholson, M.P., on behalf of an "Existing Practitioner," who was refused Registration, his application not having been sent in until after the prescribed time.

The Secretary was instructed to inform Mr. Nicholson as to the facts of the case, and to inform him that the application was too late.

Letters with reference to Registration from Captain Russell and the Liverpool Society were directed to stand over until the Registration Committee had again met and sent in their Report.

The Report of the Finance Committee was read.

*Mr. Dray* reported the amount of the Registration Fees received up to date, and pointed out that a considerable portion of that amount would have to be returned to applicants who were ineligible for Registration. The Committee approved the recommendation of the Secretary that the two accounts be merged into one, and that the expenses attendant on Registration be paid out of the Registration Fees.

On the motion of *Professor Walley*, seconded by *Mr. Whittle*, the Report was agreed to.

*Mr. Dray* proposed, and *Mr. Harpley* seconded, that cheques be drawn to meet the liabilities of the Royal College.

### *Registration Committee's Report.*

The Report having been read.

The *President*, with regard to Query I, said a number of applications were sent in after the 27th of August, and were re-

jected as being too late. The applicants then applied to the Vice-President of the Privy Council, and said they had been under a misapprehension as to the period when they should send in their applications. It was therefore suggested to the Committee that it would be advisable to extend the time, and it was accordingly extended until the meeting of the Committee, when it was decided that no further application should be received. With reference to the second query, the Council would no doubt acquiesce in a Supplemental List being sent out to the profession as complete as possible. Fees could not be returned to unsuccessful applicants until the whole matter was settled. The form of Certificate to be sent to each practitioner had better be left for the present.

*Parliamentary Committee's Report.*

The Report of the Parliamentary Committee was read, and also the following proposed Supplemental Charter.

Victoria, by the Grace of God, of Great Britain and Ireland, Queen, Defender of the Faith. To all to whom these presents shall come, greeting:

Whereas by Our Royal Charter or Letters Patent, granted on the 8th day of March, in the seventh year of our reign, and hereinafter referred to as the Charter of 1844, We were graciously pleased to grant, ordain, and declare that Thomas Turner, William Joseph Goodwin, Thomas Mayer, William Dick, William Sewell, Charles Spooner, and James Beart Simonds, together with such other persons as then held certificates of qualification to practise as Veterinary Surgeons granted by the Royal Veterinary College of London, or by the Veterinary College of Edinburgh respectively, and such other persons as then were or might thereafter become Students of the Royal Veterinary College of London, or of the Veterinary College of Edinburgh, or of such other Veterinary Colleges, corporate or unincorporate, as then were or thereafter should be established for the purposes of education in Veterinary Surgery, whether in London or elsewhere in the United Kingdom, and which We or our royal successors should under our sign manual authorise in that behalf, and should pass such examination as might be required by the orders, rules, and bye-laws which should be framed and confirmed pursuant to such Charter or Letters Patent, should be members of and form one body politic and corporate by the name of "The Royal College of Veterinary Surgeons" (hereinafter referred to as the "Royal College"), by which name they should have a perpetual succession, and a common seal, with such powers as in the same Charter mentioned:

And Whereas by our Royal Charter or Letters Patent, granted respectively on the 23rd day of August, in the fortieth year of our reign, and on the 15th day of January, in the forty-second year of our reign (hereinafter respectively referred to as

the Charter of 1876 and the Charter of 1879), We did make further provision for the government and regulation of the affairs of the said College:

And Whereas by the Veterinary Surgeons Act, 1881, further provision was made for keeping a Register of Veterinary Surgeons directed to be kept by the Charter of 1876, and for preventing unqualified persons assuming title of Veterinary Surgeon or Veterinary Practitioner or other similar title, and for other purposes; and the said Charters of 1844, 1876, and 1879, were confirmed, except so far as altered or inconsistent with the said Act, but not so as to prevent the making of any amendment thereof or addition thereto by any supplemental Charter not being inconsistent with the said Act:

And Whereas the Charter of 1844 authorises the Council of the said Royal College from time to time to make, alter, suspend, and repeal orders, rules, and bye-laws for (among other things) fixing and determining the times and places and manner of examining Students educated at the said Royal Veterinary College of London or the Veterinary College of Edinburgh or such other Veterinary Colleges as hereinbefore mentioned, who may be desirous of becoming members of the said Royal College, and for regulating the nature and extent of such examinations, and for the appointment of persons to examine and determine upon the fitness and qualification of such Students, and for the admission or rejection of such Students as members of the said Royal College.

And Whereas doubts have been raised as to the extent of the power of the Council to make orders, rules, or bye-laws, under the provisions of the Charter of 1844, and it appears to us expedient to amend these provisions:

And Whereas by the Charter of 1844 the fee or fees chargeable for admission as a member of the said Royal College is or are limited to a maximum sum of Ten Guineas, and in view of the increased expense of holding examinations of candidates for membership consequent on the progress and extension of veterinary knowledge, it appears to us expedient to authorise an increase of the said maximum to a sum not exceeding Fifteen Guineas, and also to authorise the Council of the said Royal College to demand and receive a fee or fees in respect of registration of any person as a member of the said Royal College not exceeding Five Guineas:

And Whereas it is expedient to make provision respecting the grant of the Diploma of Membership of the said Royal College to persons entitled under section 13 of the Veterinary Surgeons Act, 1881, to be registered as colonial or foreign practioners:

And Whereas the provisions of the Charter of 1844 respecting the date of retirement from office of the President, Vice-Presidents, and Secretary require amendment:

And Whereas under the Charter of 1844 the President, Vice-

Presidents, and Secretary of the said Royal College are appointed at a meeting of the Council held in every year before the expiration of one calendar month from the date of the annual general meeting, and by the Charter of 1876 the Council of the said Royal College are directed on the day of the annual general meeting of the members of the said Royal College in every year to appoint a fit and proper person as a Registrar, and it appears to us expedient that the Registrar be also appointed in every year at the same meeting as the President, Vice-Presidents, and Secretary:

Now Know Ye that We, of our especial grace and mere motion, at the humble petition of the said Royal College, have willed, ordained, constituted, declared, and granted, and by these presents for us, our heirs, and successors, do will, ordain, constitute, and declare, and unto the said College do grant in manner following (that is to say):

1. (1) It shall be lawful for the Council of the said Royal College (without prejudice to any power conferred by the Charters of 1844, 1876, and 1879) to make any orders, rules, or bye-laws for prescribing or regulating, in the case of Students of any of the Veterinary Colleges hereinbefore mentioned who may be desirous of becoming members of the said Royal College, all or any of the following matters (that is to say):

(1) The period of pupilage with a registered Veterinary Surgeon or Surgeons before admission as a member of the said Royal College.

(2) The minimum age of candidates for examination or admission as members of the said Royal College.

(3) It shall be lawful for the Council of the said Royal College from time to time to alter, suspend, or repeal any such orders, rules, or bye-laws, and to make new orders, rules, or bye-laws in their stead, as the Council may think proper and expedient, so that the same be not repugnant to these presents or to the laws of this our realm.

2. (1) Notwithstanding anything in the Charter of 1844, the Council of the said Royal College may demand and receive from any candidate at an examination of Students desirous of becoming members of the said Royal College, a fee or fees not exceeding in the whole the sum of Fifteen Guineas.

(2,) The Council of the said Royal College may also demand and receive from any person on registration in the Register of Veterinary Surgeons a fee not exceeding the sum of Five Guineas.

3. It shall be lawful for the Council of the said Royal College from time to time to grant (either after or without previous examination) to any person entitled to be registered under Section 13 of the Veterinary Surgeons Act, 1881, a Diploma of Membership.

4. Notwithstanding anything in the Charter of 1844, the President, Vice-Presidents, and Secretary shall continue in office till the Meeting of the Council at which their successors are appointed, and on the appointment of their respective successors they shall respectively retire from office.

5. Notwithstanding anything in the Charter of 1876, the Registrar of the said Royal College shall be appointed by the Council at the yearly meeting at which the President, Vice-Presidents, and Secretary are appointed, and shall hold office till the appointment of his successor.

AND WE DO HEREBY FURTHER DECLARE our will and pleasure to be that, except in the respects hereby altered, the said Royal College and the Council of the same shall have and continue to have all such and the same jurisdiction, powers, and authorities for the making, ordaining, confirming, annulling, or revoking orders, rules, and bye-laws, and transacting and ordaining all other matters and things whatsoever for the regulation, government, and advantage of the said Royal College, as the said Royal College and the Council thereof respectively had under the Charters of 1844, 1876, and 1879, or any of them, or in any other lawful manner.

AND WE DO HEREBY for us, our heirs and successors, further grant unto the said Royal College that these our Letters Patent on the enrolment or exemplification thereof shall be in and by all things good, firm, valid, sufficient, and effectual in the law according to the true intent and meaning thereof, notwithstanding the not fully or duly reciting the said Charters, or any other omission, imperfection, defect, matter, cause, or thing whatsoever, the same or any rule or law to the contrary thereof in anywise notwithstanding.

IN WITNESS whereof WE have caused these our Letters to be made Patent.

Witness ourselves at our Palace at the day of , in the forty- year of our reign.

BY HER MAJESTY'S COMMAND.

*Professor Walley* asked when it was intended to take action in the matter of obtaining a Supplemental Charter.

The *President* said the matter was in the hands of the Council.

*Mr. Taylor* thought some substantial reason should be given on the part of the President of the Parliamentary Committee for this application for a Supplementary Charter. The Council was legislating too much and administrating too little. If they had revised the bye-laws and made them sufficient it would have been better than applying for a Supplemental Charter.

*Mr. Greaves* regretted to find himself at variance with Mr. Taylor. There was no more important question than that in-

volved in the pupilage clause. They wished to be able to insist upon a candidate receiving practical instruction before applying for his diploma. At present they had not that power, and he was, therefore, entirely in favour of asking Parliament for it.

*Mr. Taylor* said the Council had the power already to make the practical examination as severe and as long as they chose, but they ought not to have power to dictate to the teaching schools that their pupils should go and do this, that, and the other.

*Professor Williams* thought that the carrying out of the pupilage clause was a matter of impossibility. Veterinary surgeons who had any practice at all would very often decline to have anything to do with pupils, and if they did take them they would never teach them anything. Then, with regard to the expense, did the profession as a whole offer parents and guardians a sufficient inducement to pay large fees? He believed that if the clause were insisted upon they would open the way for more quacks than ever to poach on their domain. The teaching schools were accused of selfish motives, but they had a far greater interest at stake than any member of that Council in the welfare of the profession, and, therefore, before legislating upon any question affecting their interests, their interests ought to be taken into careful consideration. He believed that the clause was directly opposed to the contract they had entered into with the Government, and he should therefore oppose it as far as he possibly could.

*Professor Walley* said it seemed to be forgotten by those who argued in favour of this clause that they had now a curriculum extending in any case over two and a half years, and that in some instances men were at the Colleges upwards of four years. Was the profession worth this, especially in such a country as Scotland, where men had often to work hard to support themselves at the Colleges, and were as good men, nevertheless, as any in the profession? He should oppose the clause as unnecessary, considering the extended curriculum and the power already possessed by the Examiners.

*Professor Robertson* said he had always opposed placing any weight upon the shoulders of their students that they were not able to bear, and this was the heaviest of them all. It would make the profession so expensive that men could not afford to enter it.

The *President* said the members of the Committee present at the modification of the present draft were entirely in favour of this clause. He did not think it contained anything which any principal or teacher in a school should object to. It must be for the interest of the schools, as of the entire body of the profession, that the graduates should be able to handle animals and go about them as practical men. Facilities for aquiring this knowledge were not given by the schools, and it was perfectly certain that young men who left College without having been

with a veterinary surgeon before receiving their diploma, were not fitted to practise in a country district. The pupil who went to a man with a mixed practice would, if fairly dealt with, be far more competent to practise his profession, especially at the commencement of his career, than if he had simply remained at College. The Council represented the profession, and it was for them to say whether this pupilage clause should be insisted upon.

*Professor Brown* said there could not be any doubt as to the enormous advantage of practical experience to pupils before commencing anything like public practice. The question to decide was as to the manner in which their knowledge should be obtained. In order to test the feeling of the Council, he would propose that the Charter be applied for as it stood.

*Mr. Woods* seconded the motion.

*Mr. Taylor* proposed as an amendment that the Charter be not applied for for the next twelve months.

*Prof. Walley* seconded the amendment.

The amendment was put to the Council and declared to be lost.

The motion that the supplemental Charter as a whole be applied for, was put and carried.

### *Examination Committee's Report.*

The Report of the Examination Committee was read as follows:

At the several Meetings of this Committee, the following scheme was devised and subsequently submitted to the Council:

1. That on and after January 1st, 1884, Students who enter the Veterinary Schools shall at their First Examination by the Royal College of Veterinary Surgeons undergo an Examination in the under-mentioned subjects—Part I and Part II—or produce a Certificate of having passed an Examination by some recognised educational body, for the following:

(I) For Matriculation, or any higher Examination for Degrees, or one of the "Local Examinations" held by a University in the United Kingdom, or by a Colonial or Foreign University recognised by the Council of this College.

(II) For the Certificates of the First, Second, or Third Class—provided such Certificate contains the obligatory subjects—held by the College of Preceptors.

(III) An Examination recognised by the General Medical Council as exempting Candidates from the Preliminary Literary Examinations of the various Medical Corporations; or a Certificate of Examination for Degrees in Law; or the Primary Certificate of the Pharmaceutical Society and College of Dentistry.

2. That Students who do not produce one or other of the foregoing Certificates shall be examined by the Board of Examiners of the College of Preceptors, under the direction and supervision of this College. The nature and extent of this Examination shall be fixed by the Council from time to time, and will be of two grades—(I) That which will qualify only for the *Membership*, and that which will entitle the Candidate to compete for the *Fellowship* Degree. The Examination in both grades shall consist of two parts—one *obligatory*, and the other *voluntary*.

The following are the subjects of this Examination proposed for the year 1884.

### Part I.

*Obligatory Subjects.*

1. Reading aloud.
2. Writing from dictation.
3. English Grammar, with Parsing and Composition.
4. Arithmetic—the Simple and Compound Rules, with Vulgar and Decimal Fractions.
5. Elementary English History and Geography.
6. Rudimentary Latin, French, or German.

The Maximum number of Marks for each subject is 100, and the minimum for passing 30.

### Part II.

*Voluntary Subjects.*

1. English Literature and Composition.
2. History, Ancient and Modern.
3. Euclid.
4. Algebra.
5. Natural History.

The Maximum number of Marks for each subject is 100, and the minimum for passing 50.

3. That Candidates for *Membership* shall be required to pass at one and the same Examination the whole of the subjects of Part I, and failure in any of the subjects will necessitate a Re-examination in these subjects.

4. That Candidates for the *Fellowship* shall, in addition to the subjects of Part I, be required to pass in *three* of the subjects of Part II at their option.

N.B.—It is to be understood that the above or Certificates of Examinations are not intended to supersede or interfere with the Matriculation Examination of the Schools.

### Examinations.

The Committee appointed to report upon the Professional Examinations has recommended that there be only two Examina-

tions held during the year, *i. e.* April and July, and that Students for the Final Examination be all examined in the Practical before the Oral portion. Each Student is to be examined by each of the four Examiners at the Practical Examination for not less than a quarter of an hour. These alterations to come into operation after January, 1884.

The *President* said a discussion took place, at the last meeting of the Council, on the Report, as to the Education Scheme. He had since been informed, by several members, that they were entirely misled by the heading on the Report, which had reference to a Matriculation Scheme, and that on that heading they argued against it, thinking that it interfered with the entrance of students to the Schools; and the decision of the Council was "that it lie on the table." Seeing that misapprehension had arisen in that way, and finding that the decision of the Council was entirely opposed to the desire of the Committee, he had the Report amended and circulated. He had now under these circumstances, taken the liberty of bringing it forward for discussion in the form in which it was intended to have been laid before them by the Examination Committee. There was no intention whatever of preventing students from entering the schools; the desire of the profession was that the holders of the diploma should be men possessing a certain amount of general education. He admitted that the Council had no power to enforce matriculation. They were only an examining body, and all they sought was to have power, before examining the students as to their professional education, to examine them in general knowledge. If, however, gentlemen who came up for examination would bring a certificate that they had passed a certain standard of education of some recognised Educational Body, that would be received as satisfactory. This would in no way interfere with the schools, and he thought it would be casting a reflection upon the Committee if this subject were not discussed and brought to a conclusion.

*Prof. Walley* said they all intended that the students should be properly educated; but what they aimed at was simply this—That there should be an uniform scheme of Education and Matriculation Examination, and he did not himself see what they were going to gain by adopting the Report. If, however, the Report were adopted, he thought they should recognise the Preliminary Examination of Law, of the Pharmaceutical Society and of the Dentists, and he would propose that those certificates should be added to the Report.

*Prof. Robertson* suggested that instead of the words "On and after the first of July, a student at his first examination shall present," they should insert the words "All students who enter the Schools on or after the first of Jan. 1884." That would exempt those at present in the Schools, and would let fresh students know that they were entering on these new conditions.

With respect to No. 2, he should ask to insert, "provided such certificates take up or include all of the obligatory subjects."

*Prof. Walley* moved that the clause as to examinations be altered so as to read "that in the C examination the oral shall precede the practical part, and that any student failing in the former shall not be allowed to present himself for the latter; but if he succeed in the oral and fail in the practical, he shall not again be examined in the subjects comprised in the oral examination." He said the matter had been discussed thoroughly on previous occasions. The great alteration was that if a man passed his oral examination, he might go away to get his practical knowledge where he liked. The schools did not want the men on their hands for practical work at all; they wanted them to go to practitioners, and when once they had passed the oral it was too bad to ask men to go on studying the oral when they were only deficient practically.

The *President* said so long as the student was under tuition there ought to be some guarantee that the instruction was properly carried out. If the motion was adopted it would be found that the schools were throwing off the responsibility of teaching, and by so doing they were bringing forward one of the strongest arguments possible in favour of a period of pupilage.

*Sir Frederick Fitzwygram* said it was admitted that the schools could not teach practice, and therefore he could see no object in remanding a student back to a school to obtain his practical knowledge. It was very much better that he should first of all acquire his theoretical knowledge, and if necessary he should be called upon to pass a practical examination subsequently.

*Mr. Cartledge* thought that the student when going up for his practical examination should give a certificate from a practical man to the effect that he had been with him, and had seen practice.

*Professor Williams* supported the motion, believing it to be very unjust to make a man come up again to an examination which he had already passed. He was quite willing to second Professor Walley's motion.

*Professor Walley* said he would add to his motion the amendment proposed by Mr. Cartledge—"That the student should present a certificate from the school or practitioner with whom he had been working."

The amendment was put to the Council and lost, eight voting for it and nine against.

The *President* said the Committee proposed that there should be only two examinations in the year instead of three.

*Professor Walley* proposed that in the first and second examinations there should be three examinations in the year, and in the final, two.

This motion was not seconded.

*The President* said with regard to the time occupied in the

examination, it was laid down that each student was to be examined by each of the four Examiners for a quarter of an hour.

*Mr. Taylor* moved, "That it be not less than a quarter of an hour," leaving it to the option of the Examiners.

*Mr. Greaves* seconded the motion.

*Professor Williams* proposed that the words stand—"at the option of the Examiners," without the "quarter of an hour."

*Professor Walley* seconded the amendment.

The amendment was put to the Council and lost.

The motion moved by Mr. Taylor was carried.

On the motion of *Mr. Taylor*, seconded by *Mr. Dray*, the Report of the Examination Committee was then agreed to.

*Professor Walley* moved "That Bye-law 34 be rescinded, or its provisions be more strictly enforced." The bye-law, he said, provided that if a student was rejected at any one of the examinations he must go back to the College at which he had been studying for a certain period before again presenting himself for examination. He mentioned two instances in which the bye-law had been broken—students of the Edinburgh Veterinary College, who had been rejected at their first examinations having gone elsewhere, in one case to the New Veterinary College, and in the other to Glasgow, and then been allowed to return and present themselves for their examination. What he asked was, either that the rule should be rescinded or that it should be properly carried out.

The *President* said there was no doubt that all their bye-laws should be carried out, but this could not be done unless those who were chiefly concerned informed the secretary when any infringement had taken place.

*Professor Williams* said he was not aware that the bye-law had ever been infringed by his College in any shape or form.

The subject then dropped, the understanding being that the bye-law would be enforced.

*Professor Walley* then moved "That the latter part of Bye-law 46 (now 47) read thus: 'A student holding a foreign or colonial veterinary diploma from any veterinary examining body recognised by the Council of the Royal College of Veterinary Surgeons shall be exempt from attendance on the course of lectures for the two first years, and from the examinations at the end of those years respectively.'"

*Professor Williams* seconded, and the President supported the motion, which was agreed to.

*Professor Walley* then suggested alterations in the system of marking adopted in the examinations for the diploma. At present numbers were used. The student must obtain a minimum number in each subject, and also in the aggregate of subjects. That system was unfair to the student, for if a man passed in all the subjects, why should they require an aggregate minimum. He thought it would be better to use such terms as "Good," "Sufficient," "Indifferent," or "Bad." He would propose that

those words should be substituted henceforth instead of the system of figures.

*Mr. Harpley* entirely agreed as to the unfairness of having aggregate numbers. Supposing a person were examined in four subjects, and obtained the minimum number (25) in each, why should he be required to obtain an aggregate number of 105 to entitle him to pass ?

The *President* said the minimum number had always been regarded as equal to " indifferent," and a student with two " indifferents," had been rejected.

The motion was seconded by *Mr. Cartwright*, and agreed to.

*Professor Walley* then moved that the diploma should be printed on vellum.

The Secretary was directed to inquire as to the probable cost of this.

Messrs. Broad and Woodger were elected auditors.

The *Secretary* read the obituary list.

Messrs. Duguid, Mayer, Edgar, Barnes, Drewe, and Gresswell were proposed as Examiners for the Royal Agricultural Society's prizes.

A ballot being taken, Messrs. Edgar, Barnes, and Duguid were declared to be elected to this office.

## SPECIAL MEETING.

The *President* said it was well known to the majority of practitioners in London, that a member of the profession had for a number of years been bringing it into disrepute by defrauding people of money. Recently a number of persons were apprehended for cheating people in the purchase of horses. The trial came on and ended in the defendants, who were horse-copers, of whom the member in question was one, confessing that they had been guilty of conspiracy, and they were let go with the intimation that they were to come up for judgment when called upon. He therefore proposed, in the terms of the Act of Parliament, " That a committee be appointed to inquire into the case alluded to, to take evidence, and then to report thereon to the Council."

*Mr. Dray* seconded the motion, which was agreed to.

Messrs. Wragg, Robertson, and Cox were appointed to serve on this Committee.

The proceedings closed with a vote of thanks to the President for his able conduct in the chair.

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## SPECIAL MEETING OF COUNCIL HELD JANUARY 19TH, 1883.

GEO. FLEMING, Esq., President, in the chair.

*Present*—General Sir F. Fitzwygram ; Messrs. Harpley, Dray, Cartledge, Cox, Wragg.

The *Secretary* read the notice convening the meeting.

On the motion of *Mr. Dray*, seconded by *Mr. Wragg*, the minutes were taken as read.

The *Secretary* announced that the following members of Council had sent letters regretting their inability to attend the meeting:—Messrs. Simcocks, Taylor, Robertson, and Cartwright.

*Alteration of Bye-law.*

*Mr. Dray* proposed that the alteration in one of the Bye-laws, proposed by Professor Walley at the last meeting and carried, be confirmed.

*Mr. Wragg* seconded the motion.

*General Sir Frederick Fitzwygram* moved as an amendment "That the alteration be not confirmed." He considered that it would be a step in the wrong direction altogether. Some years ago the Council compelled all students to attend a whole course of lectures and examinations. Since then he himself had proposed to relax that rule, and to allow qualified men to prove that they were qualified, without attending the lectures. Any further relaxation of the rule would, in his opinion, be injurious to the best interests of the College and to the qualifications of the students.

The *President* said that, according to the unaltered Bye-law, any gentleman who was a graduate of a foreign or Colonial School was admitted to the first and second year's examinations without attendance on lectures; the alteration would exempt them from all attendance on lectures and from the examinations at the end of those years. They would, however, have to study and to pass in Class 6. He (the President) supported the alteration, because he thought it unfair to a gentleman who had studied in a foreign school coming up in the M.B. subjects, that he should be examined without having gone through the course of instruction. He had also in his mind that distinguished members of the profession holding foreign or Colonial diplomas might come up for examination, and it would be very hard upon them to have to be examined in very elementary subjects.

The amendment not being seconded, the resolution was put and carried, and the proceedings of the Council then terminated.

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## NORTH OF ENGLAND VETERINARY MEDICAL ASSOCIATION.

The usual Quarterly Meeting of this Association was held in the County Hotel, Newcastle-upon-Tyne, on the 24th November, 1882.

The President, Mr. H. Hunter, in the chair.

*Present:*—Messrs. M. Hedley and T. Biggs, Darlington; J. B.

Nisbet, Fence Houses; W. Awde, Stockton-on-Tees; J. Fairbairn, Alnwick; W. J. Mulney, Bishop Auckland; J. E. Peele and G. Farrow, junr., Durham; G. M. Mitchell and D. Dudgeon, Sunderland; W. W. Smart, Gateshead; C. Stephenson; J. H. Wilson, W. G. R. A. Cox, A. Hunter, and the Secretary, Newcastle-on-Tyne.

*Visitor*:—Mr. Stevenson, Sunderland.

Letters of apology were read for non-attendance from Professor Walley, Messrs. T. Greaves, T. Foreman, and D. M'Gregor.

The minutes of the previous meeting were then read and confirmed.

*Mr. M. Hedley* nominated Mr. George Edward Marsh, of Richmond, as a member of this Association.

*Mr. H. Hunter* nominated Mr. J. Fairbairn, of Alnwick, and Mr. Cox, of Newcastle, as members of this Association.

*The Secretary*, in introducing for consideration the list of persons applying for registration under the Veterinary Surgeons Act, 1881, said he had sent circulars of the meeting to all the members of the veterinary profession residing within the district of the North of England Veterinary Medical Association not members of this Association. In doing so he had sent notice to a gentleman who he always thought was a qualified practitioner. In reply he had received the following letter:

VETERINARY SURGERY,
GLANTON, NEAR ALNWICK;
*Nov. 22nd*, 1882.

SIR,—I dare say you qualified and duly registered veterinary surgeons will feel much degradation at being obliged to herd with three out of the four applicants for registration belonging to Northumberland, who are, I dare say, men of good moral character (which appears to be the qualification required in your *botched* Act of Parliament); but a broken farmer, a blacksmith, and a schoolmaster seem rather strange vocations to claim registration. Those men I have indicated have never been in any way trained for veterinary surgeons, neither practically nor theoretically. Of course Mr. Kitchen, the fourth man I allude to, is a trained man and an excellent practitioner. I am glad my name is not to appear amongst them; I am content to remain a non-registered veterinary surgeon. Won't N.R.V.S.* look rather nice upon my plate?

Will you kindly let me know if the mare is still living that Fleming said had cancer, as I wish to write again to the *Veterinary Journal* concerning the case. May I use your name as meeting me at the case.

Yours truly,
WM. MARSHALL.

G. ELPHICK, Esq.,
Secretary N.E.V.M.A.,
Newcastle-on-Tyne.

He (Secretary) was exceedingly sorry to hurt any one's feelings especially Mr. Marshall's, and would take care that the accident did not occur again.

* Non-Registered Veterinary Surgeon.

*Mr. D. Dudgeon* said, in considering the list of applicants, he thought no man had a right to apply for registration who had not practised veterinary medicine and surgery continuously and had not obtained his living by so practising. He had consulted his solicitor, who confirmed his opinion that any one applying for registration must have practised continuously for the past five years and obtained his living by so doing.

*Mr. J. E Peele* endorsed all that Mr. Dudgeon had said, and thought no man should be allowed to register who had not practised continuously as veterinary surgeon, and that the Privy Council ought to know what sort of men were applying for registration. The following circular was a good illustration of the kind of men that were applying:

NOTICE OF REMOVAL.

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RICHARD HARVEY,

*Veterinary Surgeon,*

FROM

BURBANK STREET TO 32, WHITBY STREET, WEST HARTLEPOOL.

*Over Thirty Years' extensive experience in the Profession, principally in Macclesfield and Plymouth, where he was appointed Government Inspector for the Plumpton and Ermington Division during the Rinderpest, and presented with a Silver Cup, in* 1866, *by the Dairymen for his successful treatment of their cows.*

HORSES CAREFULLY EXAMINED AS TO SOUNDNESS.

Lameness in Horses treated without the permanent blemish and torture of the firing iron, which is frequently resorted to by unprincipled practitioners simply for the purpose of making a long bill.

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R. H. will take this opportunity of thanking those owners of horses and cattle who have supported him during his residence here. He feels the more grateful, as he came into the neighbourhood a perfect stranger, and had to contend with an established opposition; beyond this an Irishman took the cowardly advantage of being surrounded by satellites to insult him in a most uncalled for manner. This Irishman is the especial favourite of a small issue of backbiting scurrilous rubbish, and he was taunted with the contemptible hypercriticism of these illiterate imbeciles.

(Laughter and applause.)

After a lengthy discussion, in which most of the members present took part, it was proposed by Mr. D. Dudgeon, and seconded by Mr. A. Hunter, that the further consideration of the subject be adjourned for a fortnight. Carried.

*Mr. M. Hedley* proposed, and *Mr. Briggs* seconded, that Mr. Marshall's letter and Mr. Harvey's circular be entered upon the minutes and sent to the veterinary journals for publication. Carried unanimously.

Proposed by *Mr. J. E. Peele*, and seconded by *Mr. Hedley*,

that Mr. Smart's paper on "Pleuro-pneumonia contagiosa" be adjourned to the next quarterly meeting. Carried.

*Mr. G. M. Mitchell* then related a very interesting case of dislocation of the hip-joint in a cart horse. He believed it was a very unfrequent occurrence. The subject was an aged draught gelding used for rolley work. When the accident happened the horse was backing into a warehouse, when the calking of the shoe caught the curb and he fell. He fell first on to his hind quarter and then on to his side. He lay perfectly quiet, but when standing suffered pain and was unable to put the near hind foot to the ground. He was taken home and placed in slings. He (Mitchell) did not see the horse until three weeks after the accident. He found the limb much shorter and the quarter very much swollen. Could detect a slight grating sound, but could find nothing when examining per rectum, as the parts were very much swollen. Had great difficulty in extending the limb. He ordered the animal to be destroyed, and on making a *post-mortem* examination found the hip dislocated, with laceration of the tendons and ligaments of the joint, with extravasation of blood in the surrounding tissues. No bones fractured. The dislocation had been outwardly.

*Mr. D. Dudgeon* said he was called in some time ago to see a very valuable mare, which was very lame on the near hind leg and could make no use of it. He thought it was dislocation of the patella. During manipulation the mare became very restive, and fell over on to the lame side. She jumped up all right and continued to keep so.

Several of the members thought it must have been cramp. They had had similar cases, and the treatment generally consisted of the application of hot rugs and the administration of a dose of physic. Several members had seen cases of relaxation of the stifle joint in colts, and found the best treatment was to let them alone and to give them time. In obstinate cases had found setons and blisters very beneficial.

With a vote of thanks to the chairman the meeting terminated.

The adjourned meeting to consider the list of applicants applying for registration under the Veterinary Surgeons' Act, 1881, was held in the County Hotel, Newcastle-upon-Tyne, on Friday the 8th December, 1882.

*Present:*—Mr. H. Hunter, President, in the chair. Messrs. J. E. Peele, H. G. Farrow, junr., Durham; Mr. C. Hunting, South Hetton; Messrs. D. Dudgeon, D. G. M. Mitchell, Sunderland; Mr. J. B. Nisbett, Fence Houses; Mr. T. Foreman, Leadgate; Mr. W. Temple, Chester-le-Street; Mr. Grieve, Blaydon; Messrs. W. W. Smart and W. S. Pringle, Gateshead; Messrs. C. Stephenson, W. G. R. A. Cox, W. Hunter, and the Secretary, Newcastle-upon-Tyne.

Letters of apology were read from Messrs. Awde and Mulney regretting their inability to attend.

The further discussion of the list of applicants applying for registration under the Veterinary Surgeons Act was introduced by the President, and a very animated discussion ensued, when it was unanimously resolved to oppose all applicants who have not practised veterinary medicine and surgery continuously since August 27th, 1876, and that each individual member of the Association be requested to send in his objections why any of the applicants should not be registered to the Secretary of the Royal College of Veterinary Surgeons, 10, Red Lion Square, London, W.C., on or before the 18th inst.

GEORGE ELPHICK, *Secretary.*

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## LANCASHIRE VETERINARY MEDICAL ASSOCIATION.

THE usual Quarterly Meeting of this Association was held at the Blackfriars Hotel, Manchester, on December 14th, at 6 p.m.

The following thirty-five members and visitors were present: Members—Mr. Alexander Lawson, President, in the chair; Messrs. Peter Taylor, Greaves, Whittle, Marshall, Fergusson, Darwell, Dacre, Thomas Briggs, Locke, Hopkin, Challinor, Litt, W. A. Taylor, A. W. Briggs, Wm. Leather, Jno. Lawson, Bunnell, Bridge, Faulkner, Ingram, Thomas, Bottomley, Beard, Michaelis, Leach, Woods, junr., Hart, H. C. Harrison, and Wolstenholme. Also visitors—Messrs. H. H. Harrison, Bain, Crawford, Wilson, and Packman.

The minutes of the last meeting were read and confirmed, and the letters apologising for non-attendance were presented.

*Mr. W. A. Taylor* proposed, and *Mr. A. W. Briggs* seconded, that Mr. H. C. Harrison, M.R.C.V.S., Manchester, be a member of our Association. Carried unanimously.

The *Secretary* proposed, and *Mr. Bridge* seconded, that Mr. Frank Bottomley, M.R.C.V.S., Oldham, be a member of this Society. Carried unanimously.

*Mr. Wm. Leather* nominated Mr. Bain, and the *Secretary* nominated Mr. Davidson for membership.

The *Treasurer* then read his annual report, which shows that there is a small balance in our favour.

*Mr. Wm. Leather* gave notice that at the next meeting he would move an amendment to Rule II, so that it should fix the dates of our meetings more definitely.

*Mr. Whittle* also gave notice that he would move that the annual subscription be raised to one guinea.

*Mr. Faulkner* proposed, and *Mr. Whittle* seconded, that Messrs. Peter and W. A. Taylor be auditors for the ensuing year. Carried unanimously.

*Mr. Whittle* proposed, and *Mr. Greaves* seconded, that a vote of thanks be given to Mr. Alexander Lawson, the retiring President, for the admirable manner in which he has fulfilled the duties devolving upon him. Carried unanimously.

*Mr. Lawson* briefly and suitably acknowledged.

*Mr. Peter Taylor* proposed, and the *President* seconded, that a vote of thanks be given to the Treasurer and Secretary for ably fulfilling the duties of their respective offices. Carried unanimously.

After the last resolution had been acknowledged, *Mr. Whittle* proposed that Mr. Wm. Woods, of Wigan, be President for the ensuing year; this was seconded by *Mr. W. A. Taylor*, and carried unanimously.

Mr. Faulkner declined re-election as Treasurer; and *Mr. Peter Taylor* proposed that Mr. Thos. Briggs be Treasurer, seconded by *Mr. Locke.* Carried unanimously.

*Mr. Peter Taylor* proposed, and *Mr. Locke* seconded, that Mr. Wolstenholme be re-elected Secretary. Carried unanimously.

Messrs. Jno. Lawson and E. Faulkner were elected Vice-presidents, with Mr. Alexander Lawson *ex officio.*

A discussion followed on the question of the "existing practitioners," after which *Mr. Tedbar Hopkins* read an excellent paper on "The Buying and Selling of Horses, and their Examination as to soundness."

Gentlemen,—After receiving a request from our Secretary to read a paper on soundness, I naturally turned my thoughts to the subject; and as I drew the mental picture of the examination of a horse with buyer and seller both standing by awaiting the verdict, I resolved to treat the subject in its three-fold aspect, hence the title of the paper, "Buying and Selling of Horses and their Examination as to Soundness." Poets sing of the ever varying and changing face of nature, lawyers tell you to count on (and advisedly so) the glorious uncertainty of the law. Man, too, is ever changing from the cradle to the grave, physically and mentally; time is working its silent changes.

It does not require a very protracted experience for any one with ordinary aptitude to become convinced of the changeable and uncertain nature of the equine species. April weather in its most capricious forms is not more changeable and uncertain than are some of our subjects, hence the disappointments and chagrin that we often see manifested when people concerned are not philosophical enough to bow to the inevitable. But adieu to moralising, and for a time let us consider the general purchasers of horses, and particularly those of our own district. For the sake of convenience we shall divide them into three classes.

In the 1st, I put those who are willing to pay full value for what they require, whether it be high or low; these will yield say twenty per cent. of the whole number of purchasers.

2nd, those who are willing to pay a moderate price, but expect the choicest article; take these as representing say thirty per cent. of the whole.

3rd, those who want the best article that can be got at the lowest price; half the buyers or fifty per cent. may be included in this class.

If seasoned tried and proved animals are required for either hunting,

harness, or business purposes, the first class ought to get them, being willing to pay for them. Unfortunately, for the comfort of all concerned, the first class is only small, too small in fact to create a demand great enough to pay the vendors to keep a stock affording reasonable choice.

A Lancashire dealer would tell you it is an impossibility to buy such animals, that the London and South markets are so much better than ours that the best horses are out of his reach; this is because the majority of customers are not willing to pay what they cost to produce, with a reasonable profit to cover risk and trouble. The unsatisfactory state of our staple industry tends to diminish rather than increase good-priced buyers. Hacks and harness horses trained and seasoned are more easily produced than clever hunters, and yet we find men supplying the last-named class of horses exclusively and successfully both in a pecuniary sense and otherwise; cleverness and manners in a hunter are a marketable commodity.

At a sale of hunters last April twenty-eight horses realised £4673 10s., giving an average of £167 per horse, although nine were sold under the £100 each. The highest price given was £409 10s., and I have no hesitation in saying that two out of every three would have been rejected by Manchester veterinary surgeons as unsound. These were regarded as high prices, but I doubt if any one with £4000 or £5000 would increase his capital materially if he bought four-year olds, made them two seasons, paid all expenses of keep, men's wages, run risks of illness and accident, and then sold them as well as the stud here alluded to. But he has had his sport, one says; gay sport riding a raw four-year old to hounds and risking neck and limb as well as the animal. Then again, hunting buyers belonging to the first class are not nearly so squeamish about soundness as some in the second class, to which reference will be made shortly. Roaring, blindness, partial or complete, navicular disease, and thick tendons, are objected to. I maintain that if customers were willing to pay proportionately for the other classes of horses, making and seasoning, the law of supply and demand would complete it; but in reality we have no attempt made to supply seasoned horses for either harness or trade purposes. In Africa horses that have become acclimatised, or as they term it salted, are considerably enhanced in value. Buyers of the first class have accepted a similar fact here, and the sooner all parties concerned will embrace it the better. But at present I find no one who views the making and seasoning of harness horses as an occupation sufficiently remunerative to be worth the following, at any rate in our district.

Our second class is, perhaps, of all the most difficult to deal with. In it I should include the owners of horses in and around Manchester, who know little or nothing about them; only keep and often have but just sufficient accommodation for the number they require. These men will tell you the exact price they intend to give, and often do give the price they fix, irrespective of the real value; will pay the veterinary surgeon to examine it, and then expect to have it for perpetual use, whether little or much depending upon caprice or circumstances, for years to come.

Should anything turn up to interfere, as it generally does, and prevent the realisation of their expectation, then either the vendor has swindled or the veterinary surgeon should not have passed it, or the stupid coachman has done something to cause it; anything and everything is blamed but the right cause, the unreasonableness of the owner, who thinks the fact of his having given £60, £80, or £100 ought to insure his having an animal to use *ad libitum* like a machine. Because he has not got this

he will take or threaten legal proceedings; failing this, sell the brute for what he can get; anathematise all who have had any connection either near or remote with the purchase; change his dealer or veterinary surgeon, or man, or all, and should an opportunity be offered for any explanation, he will quote the case of another horse that either by force of circumstances, or as the exception to the general rule, has stood proof against all usage, reasonable and otherwise. A vow is then registered never to buy another horse without trial and warranty (two things most unfair and unjust, with a tendency to produce roguery and litigation *ad nauseam*), or the horses are voted such a nuisance and the source of so much trouble and annoyance that if circumstances will admit they are sold, and hiring takes the place of ownership. The sooner the better such men learn that four-year old horses fresh from the country require a long time of careful gentle work on either country roads or soft ground, and that 75 per cent. will prove failures if this is not done; even with care a good number will not be entirely satisfactory, illness terminating in unsoundness or death may come about, notwithstanding every attention. These facts must surely convince thoughtful buyers that they ought to be willing to run these risks, or pay someone else for incurring them. Older horses are at times in the market and sold at the price they very likely were worth as four-year olds; these are exceptional cases, and the supply is not equal to the demand. People willing to give 19s. for a £1 are always plentiful, whilst acceptors of the same are equally scarce.

I have tried to portray here customers we all know only too well. Very often arbitrary, unreasonable men; good payers, but exacting; successful mercantile men, conducting their business no doubt with mathematical precision, and trying to do the same with their horses. I confess I used to stand somewhat in awe of them, but latterly have been more outspoken, and run the risk of offending them by plainly telling them that if they keep horses they must run the risk and bear the loss when it arises. Some clients are lost; but when one goes another generally comes, and the peace of mind is worth something.

The third class are less trouble and anxiety to the veterinary surgeon than either the first or second. I should include in this thorough horsemen, with a natural aptitude or liking for horses. They are born horsemen—I don't use this in any disparaging sense, because it is thoroughly compatible with the character of true gentlemen.

These men know fully, as well as we do, what wears out horses' legs and produces the ills horses are *heir* to. Disease and death or permanent unsoundness are regarded as the ordinary risks of ownership, and often spoken about in a half pagan sort of style as a piece of bad luck. There is no reason why some of these should not belong to our first class, providing their means admit of it; but the generality of them you will, I think, be inclined to agree with me and place them in the third class.

Whilst some few men believe good horses are never sold cheap, a far greater number are of opinion that high-priced horses are not always good ones, and that often the best are sold at ridiculously low prices, as they may have proved by experience. Owners at times, through impatience or defective knowledge, sacrifice good animals. It may be the horse has been bought for some particular purpose, and proved unsuitable; another man judges his capabilities more accurately, and uses him for work for which he is adapted. The practical soundness is here more sought after than absolute soundness; less is said about trials, warranties, and receipts. Here's your money give me the horse, is more the type of man; and, for my part, I wish there were more of them.

Horse buyers, with extended experience, ought in time to become philosophical enough to admit that the purchasing of horses is somewhat of a lottery, with more blanks than prizes, and must remain such from the naturally constituted order of things, whilst judges are fallible and horses scarcely less fickle than women; and I think they ought to be taken like wives, for better or worse; although at times they may prove, like the man's wife, all worse and no better.

*The Seller.*—Compassion is not often bestowed on any one having a horse to sell, and yet there are to some natures no more trying or annoying ordeals to go through; and we must admit it often proves unsatisfactory. This opens a wide field. I once heard a dealer say, 'That the horse was never yet foaled for which there was not a buyer;" much in the same way as soldiers believe, "that every bullet has its billet." Some horses take very circuitous routes to get to theirs. How often we have seen an animal change hands time after time, until at last he finds his billet; and we are told by his owner he is the best animal in the world, never had his equal for the work he requires him to do.

Now, for my part, as I have said before, I should be glad to see the selling of a horse to be final. No appeal, as the auctioneers put it. At the fall of the hammer to be the property of the purchaser, with all faults and errors of description if any.

The sellers of horses may also be divided into three classes: 1st, the breeder; 2nd, the dealer; 3rd, the miscellaneous or private individual.

Considering the haphazard style in which animals are bred, the wonder is we get as many good ones as we do. The science of breeding—for it is a science in spite of its neglected state—was perhaps better understood and more carefully studied by Darwin than by almost any man that ever lived. It was my good fortune to spend some time in the company of a Scotch gentleman, who had most carefully studied and practised the breeding of Clydesdale cart horses on the lines laid down by Darwin, and his success was beyond dispute.

Our pure bred stocks never indulge in such freaks as we see in promiscuous crosses. On the other hand, it is necessary that great care be taken not to sacrifice to purity of breed soundness and health; and the baneful influences of in and in breeding, if pushed too far, are too well known to need notice.

Like produces like, but in breeding the most unlikely are brought together; and people are foolish enough to expect the good properties only to be transmitted to the offspring.

Unsoundness may or may not be hereditary, and sufficient care is not used in selecting animals for breeding purposes. If unsoundness be present it should be of the non-hereditary character. Unfortunately the loss entailed by the breaking of this natural law does not always fall on the parties who are the cause of its being violated; the young horse will probably be sold before the constitutional defect develops itself; it may be designedly sold because of the known tendency to unsoundness, or it may remain in the hands of the breeder long enough to teach him a practical lesson.

One of the duties of the wealthy landowners or the Government ought to be the providing sires of known character and soundness in country districts, insisting at the same time that all mares put to these sires are free from hereditary unsoundness. Some few years back there was a rumour that the Prince of Wales and others in high positions would take this matter up, but it appears to have given place to music; and whilst fully admitting the refining, elevating, and purifying tendency of the latter, the utility of the former cannot be gainsaid.

In breeding from pure strains the sire and dam are alike, and then like gets like. I contend we ought to breed our hunters from hunting mares by steeplechase horses, not out of cart mares by broken-down platers, as our English farmers try to do. You rarely or never see a cart mare in Ireland, where our best hunters come from. Some weeks back I saw a most remarkable instance of breeding back. I went with a client to see, with a view to purchase, some cart colts on a farm in Yorkshire. One colt struck us as being exceptionally big and powerful, whilst another of the same age running with it was better looking but only half the size. When told they were both by the same horse, we expressed a wish to see the dams, and were shown a cob 14-3 that the farmer drove in his gig; this was the dam of the bouncing cart colt we had seen, big as an elephant, a regular "Jumbo;" whilst the small colt was out of a 16 hands black mare, as I said before both by the same sire. The thing was repeated in two colts a year younger.

The only solution I could get was, the dam of the cob was a very big cart mare, so her colts were evidently breeding back. If you mix heterogenous masses you will get uncertainty as your product.

When private individuals buy from breeders they are often victimised. Our town people are in the country for a holiday, and imagine it a good opportunity to buy a horse first hand. The farmer has heard and knows that horses are sold at big prices, why should he not get them as well as the dealer. He very likely believes that the three-year old out of Darling, by a nondescript horse covered with medals, will make as fine a horse as ever stepped; all his faults and failings are attributed to want of grooming and trimming up. If Mr. So-and-so, the dealer, only had him, what he would make of him. The probabilities are, if shown to a dealer and asked for his opinion, it would not be very flattering.

In due course the new purchase is brought home, and you may be invited to look at it; you are then introduced to what often becomes a familiar acquaintance, and very likely before it terminates both you and the owner will most heartily wish you had never seen the brute. Years gone by our best farmers bred or bought good young horses, rode them to hounds, and, after making, sold them to their landlords or the neighbouring gentry; but things have changed, very few are in a position to do this now; high price of land and rents, bad seasons, and keen competition, have forced them to devote their energies to the branches of their calling yielding a quicker and safer return. Breeding of the better class of light horses in England is declining, good sires are scarce, and what are left incline more to the promiscuous type. When the owners of this class of animals are driven to sell to the dealers the latter will not buy until the animals get to a proper age, and then for purposes which they are adapted, and at reasonable prices. This brings us to our second class *dealers in horses*.

Horse dealers are not looked upon with favour by the British public; that there are many of their number arrant rogues, and utterly devoid of principle, any one with an intimate knowledge of them will not for a moment deny; but to brand them all as such is grossly unjust. Considering the changeableness and uncertainty of the articles they traffic in. I am forced to the conclusion that many of them exhibit more straightforwardness, and have more uprightness and fairness in the composition of their characters than many so-called gentlemen or business men show when placed in similar positions.

Some men, possessing a fair and unsullied reputation in daily life and business, when a horse or a horse dealer is concerned seem to lose all

this, are unfair, and even dishonorable in many cases, and judge other people by their own standard. I hold, and have long held, that as a class dealers in horses are not fairly dealt with; it is a case, no doubt, where the whole suffer for the wrong doing of a portion. Let a man who knows a horse well go to a fair, buy six or seven horses in a day, bring them home, have a quiet look next morning—will they all be satisfactory? But let him go a step further and retail them out to the average Manchester buyer, with his half a dozen visits, his trials in double and single harness, in his own conveyances by the side of his old horse, in saddle, and his wife's whims and fancies, likes and dislikes, his friend's opinion, his veterinary surgeon's examination, special warranties; add to this risks of sickness, lameness, imperfections of temper, cost of keep, travelling expenses, wages, rent, taxes, annoyance, humbug, &c., &c. The profit, if any, will it be a fair recompense for all his trouble and labour? I fear not, particularly if we judge from results as seen in actual life; for the majority of them are not able to pay their way, and end in bankruptcy. A dealer is entitled to a profit on his good purchases that will cover loss on bad ones with expenses; and if some of our buyers were driven into the open market they would learn lessons that would make them more tolerant and reasonable. I believe a few years ago we had half a dozen respectable dealers in the town; where are they now?

If a dealer's horse die or go lame who cares or sympathises with him, but if a gentleman's new purchase die or go lame that is a very different matter. Some one must hear about that, for surely it is the dealer's fault; he must bear the loss (as well as his own, which are often more serious), arguments are used logical and illogical, law is threatened, should all fail he is stigmatised as a scoundrel and cheat, and never another horse to be bought from him for the period at least of one natural life by either the suffering innocent or his friends if he can prevent it.

Our third class is a large one. Their number is legion. People who are dead, or whose grandmother or great grandmother or fifty-second cousin is dead, or there has been a death in the family; people having no further use, giving up keeping till they begin again; going abroad, property of an officer ordered on foreign service, are some of the reasons given for selling worthless, worn-out, unsound animals, or unsuitable for the purpose for which they were bought by individuals of doubtful veracity, and it is astonishing the elasticity of some people's consciences when horses are concerned.

Amateur dealers, people who buy a horse to make a pound or two, and as a recommendation to intending purchasers, assure them they are not horse dealers. No, perhaps not, but bigger rogues by far nevertheless. Nothing sounds more prigish to me than when any one has a horse to sell assuring people they are not dealers, in such cases, caution is the safest policy.

Gentlemen though often anxious not to buy from dealers prefer to sell to them; they have done with the transaction then; if the dealer is taken in it is his own look out.

Most of the roguery in the selling of horses is in this third class and with screw dealers. No doubt much of the odium that should rest here is cast on the fair and honest dealer.

But we now come to the part of the subject with which we are most intimately associated. The examination of horses as to soundness, the pleasantest part and at the same time often the most unpleasant part of our calling, breaking the monotony of every-day practice and round of

case seeing, with trips to far-off places and scenes, at times a pleasant duty, at others a most thankless office, one demanding great discrimination, cool judgment, and thorough impartiality. No college training can efficiently equip a veterinary surgeon for the satisfactory discharge of this duty. For my own part I would much sooner trust to the opinion of a practical judge of soundness minus a college training than the most scientific collegiate without the practical training. A veterinary surgeon is often called upon to decide between absolute soundness and practical soundness, two widely different states. You will find dealers and experienced horsemen good judges of the one and strangely deficient in the other, the one being the outcome of experience, the other requiring in addition a scientific training; and until a veterinary surgeon is master of both, or so far master as fallible man can become, he is not a competent person to give an opinion on the soundness or unsoundness of a horse. You will all admit, I think, that the major portion of work performed by horses is done by those not absolutely sound; granting this, you must also admit that if we pass none or permit our clients to buy none but absolutely sound animals, their purchases will be few and far between, or very young, and often when made useless animals, from other causes besides soundness; for few horses pass through to the seasoned stage without developing some unsoundness. A six-year old may be absolutely sound, but the chances are he is either too lazy or bad tempered to permit of his being useful in other respects; thus, if we are to be really of service to our clients we ought to be able to say whether a horse having certain defects is still capable of satisfactorily doing the work for which he is required. Our certificates may state that a horse is unsound, but still for all that we think he will do the work our client requires him for, or that the said unsoundness will not interfere with his usefulness. Such a thing as passing an unsound horse as sound would not knowingly be done by any honest veterinary surgeon, but if there be a dishonest one, who has not self respect sufficient or regard for his profession, I blush for him, and am thankful for the law that can be used against him; and whilst we are sorry if any honorable member of our profession, should ever suffer from this law, let us not forget that it is a useful instrument of terror to evil doers.

On the other hand, I am equally sure that many good, honest, practically sound animals have been rejected by us—unfairly so I think. If a man is so nervous of consequences that he dare not pass a horse, I maintain he is not fit to follow that particular part of his calling, besides the injustice of the thing. Our first duty is, of course, to our client, but we also are surely honest enough to admit that we have no right to wrong the other party by rejecting a horse that does not merit that rejection. I am a firm believer in doing what I believe to be right and bearing the consequences. If I candidly believed that an unsound horse would suit my client, and advised the purchase of the same knowing of the unsoundness, should after circumstances prove me to be wrong it would not trouble me to have to acknowledge my error in judgment. Have you never, on the other hand, seen horses you have rejected doing similar work for other people for years afterwards.

A case that was brought to my notice only last week in which an animal was rejected four years ago, but in spite of veterinary surgeons' unfavorable opinion as to fore legs was bought and gave every satisfaction for that length of time. It was then sold, and the week after condemned by another veterinary surgeon for spavin, when it was lame from tight shoeing, rebought at a low price, and veterinary surgeons in

general condemned as humbugs. It is not only dealers but private horse owners in and about Manchester are becoming adverse to allowing a veterinary surgeon to examine a horse they may have on sale. Even if they believe it to be sound they say he is "sure to find something."

Thus far we have spoken generally of the question of soundness and unsoundness. Before particularising as to unsoundness we should note that it is necessary often not only to examine the horse, but also consider the other two parties concerned, the buyer and the seller. Is the examination for one of our own clients whose character and requirements we are well acquainted with. Should it be for a party we know to be fond of law, then be careful to strictly observe the law and no more, and let him reap the benefit of his own unenviable disposition, for Shylocks I verily hate; should the seller's character or reputation be doubtful, be careful, but do not condemn the horse for the man, for even a rogue deserves justice, and you are not just if you condemn a horse on account of his owner.

Now, for particularising; take first a general survey, note the class, appearance, and anything that may strike the eye. In examinations I have come to the conclusion that the truth of the old saying, "What cannot speak cannot lie," will only bear a literal interpretation; if it cannot speak a lie it may denote one. Our Irish friends in particular are so expert at cultivating the artificial growth of teeth that it is always safest to say instead of a horse is such an age that his mouth denotes such an age. Then, again, treatment with early and late foaling does materially interfere with the dentition, and we know short-horn cattle will have a full mouth at three and a half, whilst with rough Welsh or Irish it is five before they get it.

Another matter with the teeth, not often done but under certain circumstances, ought not to be overlooked, is the examination of the molars for irregularities or decay. A horse may and often has a five-year old mouth when only four, and if only four years old his legs will not stand hard work on our roads and paved streets. The reference already made to the unwillingness of our clients to pay for a seasoned animal or go to the necessary trouble and expense required to season their own, is fruitful source of trouble. Horses in the country have an advantage over those in the towns, because often after overwork they get long rests out at grass, where their legs and feet are cooled and renewed. Bent legs, swollen joints, ossific deposits, are often due to overwork on artificial roads before the tissues are set and hardened. I also hold that no horse should be called on to severely exert itself unless in hard condition. Ligaments, tendons, and muscles are more liable to sprains when the animal is out of condition than when the horse is what we term "fit."

Lameness may be temporary and of trifling importance or permanent, and every lame horse may not of necessity be rejected entirely if caused by defective shoeing, or a slip, knock, or twist, it may only be transient. Shoulder lameness, navicular disease, ringbone, hip-joint, spinal and some forms of hock lameness, justify total rejection. Supposing an animal to have certain defects which do not cause it to go lame at the time of the examination, when are we justified in advising our clients to run the risk of purchasing such an animal? Because we are constantly called upon to do this whether we like it or not, and it is here where I think the Manchester veterinary surgeon has earned a notoriety in rejecting practically sound animals rather than passing unsound ones. In Ireland two thirds of those rejected in Manchester as unsound would

be passed as sound, and in other portions of the United Kingdom a large per centage of our rejects would be passed.

In the matter of feet, I have known a horse when they have been allowed to grow long, a shoe lost and one foot broken, to be rejected by a veterinary surgeon as having odd feet; as most of you will have noticed after a horse has been for some weeks at grass the horn grown during this period has a ringy appearance; this has been condemned as produced by laminitis. The smith's rasp, judiciously applied, would have caused the same party very likely to praise them as the best of feet.

I should not reject a hunter with corns unless very bad, whilst in town horses they often seriously interfere with an animal's usefulness.

Splint lameness, again, is generally only of a temporary character, though it may, even when not interfering with the tendons, prove a source of annoyance where hard roads have to be considered. Side-bones require careful consideration, whilst great numbers of cart horses work well and go sound with them, there are others in which they increase in size and produce lameness; light horses affected with them I should decidedly reject.

In the hind leg the hock affords scope for great diversity of opinion. I may, perhaps, startle some of you when I tell you I believe more horses go sound with spavins than go unsound from them; big and coarse hocks rarely wear unsound, little round hocks, and where one is larger than the other, are to be regarded with more suspicion, though cases are not difficult to find where odd ones have proved a good pair. Some members of the profession may broaden their views on the hock question, and not in any way jeopardise their position. I call to mind two cases where I rejected hocks, the one has been a fire engine horse for years, and the other carries a very hard rider in Sir Watkins district, perfectly sound in spite of the severest strain.

Curbs depend on conformation; hard cool curbs on good shaped hocks may be only eye sores.

My opinion with regard to bog spavin and thoroughpin has been contrary to fact in many an instance; in three and four-year olds these may, and often do, disappear in later years, particularly if rested or fairly worked. I do not now regard them as incurable in all cases.

Sesamoiditis, too, has played me false both ways, it has yielded to treatment when I thought it incurable and not yielded when I thought it ought.

Rheumatism might escape detection, though there is an appearance if the lameness be not present, not easily described but recognisable to one who has treated such cases.

Shivering and spinal affections might escape the notice of a young practitioner once or twice, but not more I think. The respiratory organs are often a tax upon us; whistlers in a storm may not be heard even when you are not hard of hearing, and to be able to ride your own as well as see them ridden is not a disadvantage, particularly if the animal is fit to go. Riding schools are not fair places to test a high-couraged horse's wind in. Again, whistling is not always constant, and if a horse does not make a noise when we examine him and is proved to be a whistler afterwards, I should certainly maintain my position, particularly if there was no grunt, or, on the other hand, a horse may grunt and still be sound in his wind.

Does indigestion, worms, or diabetes constitute unsoundness? Skin diseases—I have had several cases lately where horses have broken out with ringworm and horsepox (I know no other term for it) soon

after examination, much to the annoyance of myself and client—but I cannot see how I could help it—one case with an unclipped horse directly he was clipped showed five ringworms.

To pass a horse with heart disease would be an unpleasant matter, but might easily be done; one thing I have noted in two cases latterly under observation and think worth remembering is pallor of the visible mucous membrane.

Blemishes and vices may or may not constitute unsoundness.

Broken knee or knees should always be noted, though not necessarily cause rejection. The detection of vices is more difficult, although I should without hesitation reject either a crib-biter or wind-sucker if I detected it. On the other hand, I should as stoutly hold that a man might pass either of these without detecting them, and not be guilty of culpable negligence. It is always advisable to ask the question is this animal a crib-biter or wind-sucker, and if the vendor answered in the negative I should hold that as sufficient to exonerate us from blame. The worn or rounded outer margin of the upper incisors is not a positive indication of cribbing, as it may be produced in other ways, though it is highly suggestive.

When any doubt exists as to the soundness of the eyes let me recommend the use of a pocket lens and a light in a dark stable. By a very simple arrangement the light is thrown on to the posterior part of the ante-chamber when cataract or any opacity of the lens is at once detected.

In testing or trying a horse in our examinations we ought to be careful (and particularly so if likely to reject the animal) not to injure or increase lameness if present, it is quite enough to reject a man's horse without damaging it into the bargain.

In conclusion, gentlemen, whilst I frankly own to those who are anxious for knowledge there is little or nothing new in this desultory paper, yet the united publicly expressed and confirmed views must tend to strengthen and give us confidence in expressing our opinions, "Whilst to err is human and forgive divine. Be assured we shall if long in practice afford ocular demonstration of the first, let us hope our clients may possess the latter attribute and unanimously exercise it towards us.

The subject was listened to with great interest, and its discussion postponed until the next ordinary meeting.

JNO. B. WOLSTENHOLME, *Secretary.*

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## IRISH CENTRAL VETERINARY MEDICAL SOCIETY.

THE annual meeting of this Society was held on January 9th in the theatre of the Royal Dublin Society. The following gentlemen were present, in addition to a good attendance of ordinary members and some visitors:

Mr. T. D. Lambert, honorary associate, and outgoing President; Mr. L. Hunter, Dublin; Mr. W. Pallin, late 20th Hussars; and Inspecting Veterinary Surgeon Lambert of the Army Veterinary Department, Vice-president, with Mr. John

Malcolm, of Enniscorthy, the President-elect for 1883; and the Hon. Secretary, Mr. Sperring, Government Veterinary Inspector, Dublin.

Mr. T. D. Lambert took the chair, and after the usual routine business of the Society, including the Secretary and Treasurer's report, had been got through, he inducted Mr. Malcolm into the chair, and congratulated him in felicitous terms on his assumption of office as president for the year.

*Mr. Malcolm* then proceeded to deliver his inaugural address. He said:

The pride and gratification which I feel at being called upon to preside over the deliberations of this your learned Society are, I assure you, considerably qualified by a sense of the responsibility attaching to the position and a distrust of my capability of filling it with the credit it deserves. This sense of my own shortcomings will, I trust, however, prove to be of advantage in one respect, and that is of stimulating my energies and zeal in your service, so that when the term of office for which you have so kindly elected me shall have expired I shall lay down my trust with the consciousness that I have done my best in your behalf. This day sees the anniversary of our existence as a society, and young as it is I think that its members can point with pardonable pride to its record of usefulness during the brief period of its existence. It has attained a footing in spite of many difficulties and obstacles, not the least of which latter was the opposition which met the scheme at its foundation, when the idea was first brought before the profession in Ireland by our now secretary and one or two hard working members of our body. When active opposition was not met with, another formidable enemy to the scheme was found in the apathy with which, I am sorry to say, movements for the benefit of the profession are, alas! too often treated by its members. Others there were who, true "laudatores tempora acti," sang their praises of the old time, and cynically inquired why, "if a veterinary society could not, and did not, thrive in the good old times, what prospect was there of its doing so now?" That query is sufficiently answered by the present condition and prospects of the Irish Central Veterinary Medical Society on this our anniversary. We have a large number of subscribing members on our roll, in addition to two revered names, which, "pro honoris causa," in the interest of our profession, have been placed on our roll of honorary associates. Both of these gentlemen (I need not say that I refer to Professor Ferguson and Mr. George Fleming) have taken a warm interest in our Society. And although they have not, from circumstances beyond control, been able to lend us active assistance hitherto, I have every reason to believe that we shall secure their active co-operation during the ensuing year. Of Professor Ferguson, the father and acknowledged head of the profession in Ireland, I may say one thing, and that is, our Society possesses his very strongest sympathies. Of Mr. Fleming, the bright par-

ticular star in the ranks of the English section of the profession, what can I say more than that this (as every other effort to advance the interests of our body does) commands his warmest and most cordial support. At the time this Society was established the profession in Ireland was unrepresented at our professional parliament, or, in other words, no Irish veterinary surgeon held a seat at the Council of the Royal College of Veterinary Surgeons. I am happy to say, however, gentlemen, that that stigma on our body in Ireland has been removed by the election of my friend Mr. Thomas H. Simcocks to that proud position. The ban of disfranchisement has been removed from us, and the views and requirements of the Irish section find an able and persistent exponent in the worthy member of our Society who represents us at that Board. This election, I need not remind you, was due almost entirely to the effort of our Society. I say that this alone would be a sufficient evidence of the usefulness of our Society, even were there no other; but I may further remind you that a short time ago I had the honour, in conjunction with my friend Thomas Drummond Lambert, your worthy and esteemed ex-President, of being delegated on your behalf to attend the inaugural meeting of the "National Veterinary Society" in London, when, I am proud to say, my co-delegate was elected a vice-president of that distinguished body, and that under its rules your President and Secretary will always have voices at its Council. In that we have accomplished a thorough representation of the Irish practitioners at the fountain heads of veterinary institutions. What more may we not accomplish in time to come? There is another good which I believe has arisen out of our meetings, and that is, they have brought together a large number of the members who were seldom or ever in the habit of meeting. Little amenities have been exchanged, friendly greetings given, opposing views discussed and settled, and the pleasant friction which opportunities of frequently meeting give have rounded off the little asperities inseparable from the encounter of those who are strangers to each other. I have thus slightly sketched the bearings of our Society from a politico-professional, a representative, and a social point of view, but I feel I cannot pass from the subject without bearing my tribute of praise and thanks to the founder and mainspring of the Socety, without whose indefatigable energy and perseverance we should neither have existed as a Society nor established it, as has been done. I need not mention names. You may all know to whom I allude. Gentlemen, may I suggest that there are some diseases which I would very much desire some gentlemen to read papers on this year. First, there is pleuro-pneumonia. There is such a diversity of opinion on this disease that it would open out a large field for discussion. We know it is infectious; that the disease commences in the bronchi, the blood becomes poisoned by the germs, inflammation takes place, which extends to the parenchymatous structure of the lungs or interlobular tissue.

The pleuro-pulmonalis and pleuro-costalis are next involved; then in place of exuding a sufficient portion of serum to lubricate parts and allow the lungs to move at ease, they become dry, thence the friction sound, but soon effusion of a more serious nature takes place. Lymph is formed, and adhesions take place between the pulmonalis and pleuro-costalis; consolidation, hepatisation, of a lung or a portion of a lung, in some cases both lungs. In the first step any veterinary surgeon may make a mistake—that is, before structural disorganisation takes place, but when it reaches the latter step no veterinary surgeon ought to make any error with regard to it. Another very good subject, in my humble opinion, would be the atmospheric influences in disease, in connection with ventilation and infectious diseases, such as pleuro-pneumonia and many others. You all know the composition of the atmosphere. It is a mechanical mixture composed of oxygen, nitrogen, carbonic acid, ozone, ammonia, and vapour of water. You may often have seen the sun shining through a window, and small particles floating in the air. Well, those particles might be the germs of disease which, under ordinary circumstances, you cannot detect. This subject, I believe, would also bring forth some very valuable information in connection with disease in general. Another very important one, and one that I thought of bringing forward myself, is the soundness and unsoundness of horses; for you are all aware what a diversity of opinion exists amongst veterinarians on this very important subject—a subject which, in my mind, has done more to lower the standard of our profession than anything I am aware of. However, I hope some one more able and competent than myself will undertake the task. Glancing at those professional subjects which have been brought before the meetings of the past year, we have heard some noteworthy papers from three of our members—"Melanosis," at the hands of Mr. Ross; "Castration," by Mr. T. H. Simcocks; and "Influenza," by Mr. John Freeman, have each been brought forward in a most able and instructive manner, and have elicited lively and profitable discussion. Our attendances have been good, and no scientific argument has been tainted with anything like heat or extravagance, but each and all have done the very best to secure perfect harmony and good tone at our meetings; and I am sure that this will continue to be our rule. The record of our past being briefly noticed, let us consider for a few moments two or three of the goals towards which our exertions should be directed for the future. Let each member, during the pursuit of his daily avocations, note and record, for the benefit of the Society, every strange or uncommon case which comes under his notice, and take special care to bring them before the meeting following, Let us all cultivate a strict attention to professional etiquette. Let us never be guilty of any conduct towards a professional brother which we would not like to be shown towards ourselves. Let us cultivate a spirit of brotherly love and mutual respect, and show an

example to the world of professional union. One word, gentlemen, about our veterinary inspectors. You know the very important post veterinary inspectors fill. The very honour of all the profession is at stake if they make a mistake; for a mistake made by one member of our body makes an impression on the minds of a large portion of the community that we are all alike; but at the same time the well thinking portion of the public look over these matters. The remuneration they receive, considering the hardships they have to undergo in all kinds of weather, is very small indeed; and I believe, if represented in a proper form to the Government, they would take their condition into consideration; and never was there such an opportunity offered before as there is now, with Earl Spencer—who was always a true friend to the profession—at the head of Her Majesty's Government in Ireland. There is a subject to which I may briefly allude, and that is the advantage to be derived from cultivating as much as possible the co-ordination of the medical profession. I say it with regret, but I say it advisedly, that I am convinced that our position as surgeons and animal physicians is, as far as status goes, largely discounted by the acts of many individual members of our profession. The popular idea of a veterinary surgeon is, I am pained to say, that we are a kind of superior farriers. We all know, gentlemen, that our education and professional training is at least equal to that of the ordinary medical practitioner; yet what are the relative social positions in, say, a small country town, of the two men? I say that (leave, of course, the soul element out of the question) our mission of administering medical aid and relief to God's dumb creatures is fully equal to that of the human surgeon; yet the humiliating fact remains that the social position of the latter, be it a true or false one, is infinite y superior to the former. The human surgeon in his diagnosis has the advantage of two aids thereto—the subjective set of symptoms, which are appreciable by his patient, and the objective symptoms, which are appreciable by himself. We have not the former aid to our diagnosis; we cannot obtain from our patient an exact description of the seat of disease, by the account which the human subject can render of his sensation of particular localised pain. No, our diagnosis must be derived exclusively from the objective class of symptoms; and this, I argue, requires a much more exact knowledge of symptomatology on our part than is ever required from the ordinary medical man. Let us assert our position. Let us refuse to accept a lesser position than we as scientists and members of a learned profession are entitled to. Be assured, gentlemen, the world takes a man very largely at the value he places upon himself. Gentlemanly bearing and conversation, exact knowledge, not only of the practice but the theory of the art of which we are the exponents, combined with a demeanour which compels proper recognition and respect, go far to establish the position of a veterinary surgeon who exhibits them to be a scholar and a gentleman. Happily, of these we

have many in our ranks; but how many are there also who discount this status by unworthy habits and pursuits? There are too many, alas! But let us come out from amongst them, and show them a better example. Now, gentlemen, the beginning of my task as your President is done. Let us all determine to work together for the common good. Let us eschew petty professional jealousies and crotchets at all times. May you all enjoy a prosperous and happy year, which when it approaches its end will still show "something attempted, something done."

At the termination of the address, which was greeted with enthusiastic applause, Mr. W. Pallin rose, and, in a happy speech, congratulated Mr. Malcolm on his assumption of the Presidential chair, and proposed a hearty vote of thanks to that gentleman for his very interesting and eloquent address,. This was seconded by Mr. Hunter, and the meeting was brought to a close by the announcement from the Secretary that Inspecting Veterinary Surgeon Lambert will read a paper on the "Germ Theory in connection with Diseases of Animals."—*The Farmers' Gazette.*

## Veterinary Jurisprudence.

### POTTED MEAT—HORSEFLESH AND SOMETHING WORSE.

Aston Police Court, Birmingham, *December 27th,* 1882.

*William Henry White*, potted meat manufacturer, Catherine Street, was prosecuted by the Local Board for having a quantity of unwholesome meat in his possession. Three hundred and fifty-two pieces of partially decomposed horseflesh, besides a quantity of diseased pork and beef, were found in the defendant's "manufactory" in various stages of preparation for potted meat. There were also fifty tins of potted meat which had been made, but the meat was described as very "suspicious" and totally unfit for human food.

Defendant, who was prosecuted on two summonses, was sentenced to three months' imprisonment with hard labour in each case, without the option of a fine. The magistrates characterised the case as the worst they had ever known. The prisoner appeared thoroughly astonished at not being allowed to pay a fine.

## NEW MEMBERS OF THE PROFESSION.

At the meetings of the Court of Examiners of the Royal College of Veterinary Surgeons, held 13th January, 1883, the

following students from the Royal Veterinary College were admitted members of the profession:

| | |
|---|---|
| Mr. Smith, T. A. . . . . | Oakley Square, London. |
| — Smithers, Walter . . . . | Finsbury, E.C. |
| — Raymond, R. W. . . . . | Longford, Ireland. |

The following students passed their *Second Examination* on the 11th and 12th January:

| | |
|---|---|
| Mr. Gill, A. | *Mr. Singleton, H. M. |
| — Skilton, C. F. H. | — Higgott, T. H. |
| — Somers, H. L. | * — Baker, T. E. |
| † — Snowball, W. B. | — Smith, H. |
| — Burghope, L. | — Brown, W. |
| * — Heinemann, C. W. | — Reid, W. S. |

The following students passed their *First Examination* on 8th, 9th, and 10th January:

| | |
|---|---|
| Mr. Collings, W. A. | Mr. Phillpot, W. F. |
| — Revill, W. | — Simpson, R. |
| — Morgan, W. E. | — Simpkin, F. A. |
| — Exley, J. B. | — Jones, A. |
| — Maples, H. B. | — Marshall, C. W. |
| * — Fryer, G. E. | — Meek, F. E. |
| — Wright, F. | — Chambers, H. B. H. |
| — Coleman, J. C. | — Brundell, R. E. |
| * — Leigh, F. W. | — Haydon, G. W. M. |
| — Farmer, J. | * — Harvey, F. T. |
| — Arnald, T. B. | — Arnald, H. B. |

* Marked thus, passed with *Great Credit.*
† Marked thus, passed with *Very Great Credit.*

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## OBITUARY.

We have to record the death of Mr. J. P. Richardson, M.R.C.V.S., Clonmel, who graduated in May, 1838.

Our attention has been called to the record of the death of Mr. Edward Alleyn Evanson Ashe, which appeared in our last number, in which it was stated that his diploma was dated April 16th, 1874. It appears from a communication received from his son that Mr. Ashe passed his examination in 1849, but by an oversight his name had been omitted from the Register of the Royal College of Veterinary Surgeons. The Mr. Ashe whose name still stands on the Register as having passed in April, 1874, died two years since. Our readers will thus see that the error did not arise from any fault on our part.

THE

# VETERINARIAN.

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## Communications and Cases.

### ACUTE SUPPURATIVE OSTEO-LAMINITIS, CARIES OF THE OS PEDIS, SEPTICÆMIA, DEATH.

By J. Wortley Axe, Professor of Pathology, &c., at the Royal Veterinary College.

A black cart gelding was admitted into the infirmary of the College on the 23rd November, 1882, which was reported to have become lame of both fore limbs during the night of the 21st without any apparent cause. The horse had been recently purchased, and was at that time very fat and wanting in condition.

Examination revealed considerable pain and lameness in the feet, with the characteristic post-plantar movement, a marked rise of temperature, together with other indications of constitutional disturbance. A dose of aperient medicine was administered to him, and poultices applied to his feet. On the following day the bowels acted freely, the pain and lameness were much relieved, and the constitutional symptoms less marked. On the 28th a slight separation of the coronary border of the hoof was observed in both fore feet, from which a small quantity of pus issued. The discharge continued to increase for two or three days, and the separation of the tissues to extend somewhat further in a forward direction. The detached horn was carefully removed piece-meal to prevent pocketing of pus, and the wounds were treated antiseptically. At this time the lame-

ness had considerably diminished, and the constitutional disturbance was much allayed. The horny structure, however, continued to separate from above downwards, within the limits of the inner quarter of the foot, and the detached horn was accordingly removed from time to time as seemed desirable. In a few days the discharge had considerably diminished by the persistent use of antiseptic dressing, but although reduced in amount it soon developed an offensive odour, which led to a careful exploration of the wound, when the heel of the os-pedis was noticed to be exposed. The horse was then cast, and the bone was cut down upon, when it was found that the whole of the wing had become detached from the body of the bone, and was consequently extracted. The operation was divested of difficulty by the fact of the necrosed portion being almost completely encysted, in which condition it was capable of being removed with but little damage to the surrounding structures. After the operation the foot was again treated antiseptically, and all went well until about three weeks afterwards, when the horse was reported to have manifested signs of abdominal pain a short time after feeding. In the course of the same day great prostration was evinced, the temperature ran high, the pulse was rapid and weak, the respiration was short and quick, and the body bedewed with sweat. There was great thirst and profound dulness, approaching to stupor. The visible mucous membranes were of a reddish-yellow hue, and the extremities were cold, and the mouth hot and clammy. At this time it was clear that the case was one of septicæmia, and stimulants alone were relied upon. The horse died twelve hours after the first indication of illness.

*Post mortem* (ten hours after death).—The superficial vessels were engorged with black tarry blood. The subcutaneous cellular tissue was emphysematous. The peritoneal cavity contained about three quarts of blood-stained serosity. The peritoneal membrane exhibited numerous petechiæ and blood blotches. The large intestine contained a considerable amount of extravasated blood, the walls were thickened throughout their whole length, and infiltrated with a yellow gelatinous exudate. The mucous and submucous tissues were soft and friable, and the muscular layer was easily torn and broken down. On section of the vena porta a considerable amount of black fluid blood was discharged. It was tarry, and stained the hands deeply.

*Liver*—This organ was swollen, soft, and friable, as the result of general œdema. On section it presented numerous points and patches of blood extravasations. The interlobular veins were bloodless, being drained by the escape of blood into the intestines.

*Kidneys*.—The renal capsule was readily removed from the gland structure, which was soft and pulpy and uniformly infil-

trated with serosity, and studded with blood spots and linear discolorations in the line of the intertubular vessels.

*Spleen.*—Outwardly the spleen exhibited an irregular lumpy appearance. In parts it had collapsed. Throughout it was soft and yielding, at some points pulpy and diffluent. The nodulations corresponded to hæmorrhagic infarctions, which on section were found to be marked out by black areas or blocks of spleen tissue ploughed up by extravasated blood.

*Lungs.*—The lungs were considerably enlarged, the surface of both was marked by dark patches of subpleural hæmorrhage from one to three inches in diameter. On section numerous infarctions were seen in the substance of the organ, besides a generally hyperæmic and œdematous state of the pulmonary tissue.

*Heart.*—The heart was soddened as if having been macerated in water. It was deeply blood stained in the course of the large veins. To the touch it was doughy, very soft, and easily broken. There was considerable sub-endocardial extravasation, and several small irregular areas of endocardial ulceration, some of which were covered with loose granular coagula.

*Feet.*—Examination of the feet showed both pedal bones to be in a carious condition, and the tissues around the diseased centres were in a dark disorganised sloughy state. Both in a clinical and pathological aspect this case possesses features of considerable interest. Besides illustrating the intimate pathological relation of the ossific and laminal structures of the foot, it likewise clearly sets forth the typical characters of septicæmia.

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## ADYNAMIC LUXATION OF THE PATELLÆ.

### By the Same.

On the 9th of November last two horses were brought to the Royal Veterinary College for examination as to soundness. One of them was found to have a slight cough, accompanied by a scanty mucous discharge from both nostrils, and slight fever. Under the circumstances it was deemed advisable not to submit this animal to the necessary exertion for determining the state of his respiratory organs. In other respects he was considered to be sound, and reported upon accordingly. At the same time it was suggested that the examination of the "wind" should be made on some future occasion, when the fever symptoms had disappeared. Two days afterwards he was admitted into the infirmary of the College, partly on account of his fever attack,

which had become more severe, but especially on account of repeated temporary luxation of both patellæ. From this time up to the 20th the fever continued without abatement, and was supplemented by an attack of stomatitis, which appeared and spread in a backward direction from the right angle of the mouth for some distance over the buccal membrane. During this time the horse manifested considerable general weakness, and movement of the hind extremities was frequently attended by a temporary displacement alternately of both patellæ. The luxation was at no time complete, but of sufficient extent to fix the limb in a direction outwards and at the same time temporarily suspend the power of movement. Either of the displaced patella could be distinctly felt projecting over the femoral ridge, and on the animal being made to move, it again returned to the natural position, and in doing so emitted a subdued click. Under the influence of general stimulating and tonic treatment, directed by Prof. Robertson, the horse rapidly regained strength. The luxation became less and less frequent, and ultimately disappeared altogether. He left the College on the 12th of December, and has since been in regular work without a recurrence of the mishap. This would appear to be an example of dynamical disturbance of the muscles consequent on the pyrexial state of the system, and I am not aware that a similar case has been placed on record. Several allied cases have been brought however under my notice at the College during the past fifteen years, and I believe that this form of luxation is by no means rare. The case is especially interesting in connection with the examination and certified soundness of the animal, thirty-six hours prior to the appearance of displacement, and may serve to allay the fears of those whose conclusions as to the soundness of an animal may some time be similarly challenged.

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## ON THE PRESENCE OF ŒSTRIDEAN AND MUSCIDEAN LARVÆ IN THE HUMAN BODY.

By Dr. Jacobs. (Translated, with Footnote References and Remarks, by Professor Cobbold, M.D., F.R.S.)

(*Continued from p.* 83.)

In the year 1788 Gmelin, relying on a passage in a letter of Linneus to Pallas, in which mention is made of the occurrence of larval Œstrids on the human body, established the *Œstrus hominis*. It is in the thirteenth edition of the 'Systema Naturæ,' where he adds the *Œstrus hominis* to the Œstrids of Linneus. This opinion concerning the *Œstrus hominis* has been

equally shared by Rudolphi, who has created the *Œstrus humanus*, which Raspail tried to resuscitate in 1843. Wolfhart, Latham, and Humboldt have tried to give to it the characteristic [definition], and Guéren, in consequence of observations on the presence of larvæ in a negro who suffered from smallpox, made a description of the parasite. He recognised the fact that these larvæ exhibited the character which these authors assigned to the Œstrids, being analogous to several of those larvæ which Bracey Clark has figured, but not [specifically] identical with them. In consequence of these differences Guérin, like Rudolphi and Gmelin, is brought to consider these larvæ as a distinct species, and to designate them under the name of *Œstrus humanus*.

We can say that the larvæ of the Œstrus (*G. Hypoderma*) has only been observed on man once in Europe. It is the case related above, due to Dr. Spring. The other facts reported by Spring and those extracts from the 'Zoologie Médicale' do not afford the necessary certitude.

The other larvæ are all of intertropical origin, and all of them exhibit some differences.

The observations of Hope, certain and authentic, leave much to be desired in respect of the description. No one of these is identical with the larvæ of Œstrids, if it is not that described by Guérin (near, by some slight differences), who admits the *Œstrus humanus;* and here we find that there is no resemblance between this larva and that described by Roulin, the *ver Moyocuil* and the *ver de Cayor*. (Pruvot, 'These,' p. 24.)*

*Larva described by Guérin.*—Colour whitish, seven lines in length; posterior extremity truncated, anterior narrowed; eleven slightly distinct articulations, but indicated by as many zones; adorned with horny hooks directed backwards. Mouth placed altogether to the anterior part, with an opening surrounded by a collar (bourrelet), and armed with two slightly-curved hooks. (Pruvot, 'These,' p. 23.)

*Larva described by Roulin.*—Larva whitish, pyriform, ten lines in length, five to six in diameter at the stoutest part, where it displays several rows of blackish spines. (Pruvot, 'These,' p. 17.)

*Worm called "ver Moyocuil."*—Larva destitute of superior stigma; for the inferior one finds three membranous tubes at the bottom of the stigmatic cavern united by a system of horny anastomosing bands, these tubes being connected with a mem-

* I have reluctantly given this passage very literally. The rare repetition of the noun renders it sometimes difficult to guess the author's meaning. Our English writer Cobbett set an example in this respect, which should be more closely imitated.—T. S. C.

branous chamber, which is continued as a covered canal, with the large tracheæ. (Pruvot, 'These,' p. 19.)

*Worm called "ver de Cayor."*—Appearance ringed; contractile movements from one end to the other; the head armed with a hook, the opposite extremity pierced by an anal orifice; chrysalis brownish and hairy, somewhat cylindrical, having lost its hook. (Pruvot, 'These,' p. 21.)

*Larva of Œstrus* (Pruvot, p. 13).—Larva fusiform, apodous, with distinct head, deprived of eyes and organs of hearing; from eleven to thirteen scarcely apparent segments, and the first or *pseudocephalic* carrying a pair of strong mandibular hooks, except in the genus *Hypoderma*. Teguments covered with sharp chitinous spines, turned downwards, much stronger at the inferior border of most of the segments. Body arched at its anterior surface, more pronounced in the cutaneous Œstrids. Inferior stigmates, numbering two pairs, lodged in the bottom of a depression, called the stigmatic cavern, which can be closed at the will of the animal, either by means of two lips applying themselves the one to the other (*Œstrus equi*), or by a unique form of anterior lip elevating itself in front of the orifices (*Cephalæmyia ovis*), or again by a circular pad (bourrelet), which closes itself in wrinkles, after the manner of a purse when one pulls the strings (*Œstrus hæmorrhoidalis*). Among the Œstrids, again, the longitudinal trachea-trunks are connected below to the two horny stigmatic plates by a very complicated structure, commonly reniform and riddled by a more or less considerable number of little orifices.

The difference of larvæ, according to their description, prove that several species of Œstrids can attack man. "If one bears in mind that many of the observers have remarked that the larvæ thus discovered as identical with those which live in the same situations, equally on wild as on domesticated animals, and that at all the times that the species has been made capable of being rigorously determined, it has been rigorously established that it habitually enjoys another kind of life and only attacks man accidentally [then it follows that], one will be inclined to conclude with Bracy Clark, Joly, Brauer, and others, that the Œstrids, whose larvæ we have all collected, have simply committed an error of location, and that they are parasites by no means habitual to the human species—in a word, that they are not referable to *Œstrus hominis*."*

Œstridean larvæ, which are accidentally met with in man in

* The author, or rather M. Pruvot, clearly considers that there is no such human fly or larval form entitled to be considered as a separate or good species. The so-called *Œstrus hominis* is merely a "strayed" bot, to employ Von Siebold's appropriate term for such wanderers.—T. S. C.

hot countries, attack, in addition to cattle, other domesticated animals. Of this group authors have made the genus *Cuterebra ;* the larva has much analogy with that of the *Edemagènes,* and of the Hypodermes with that of the true Œstrids. Their residence beneath the skin causes abscess.

In America the dogs are sometimes attacked by them ; perhaps it is to a species of this kind that one must refer the larvæ found by Dr. Berranger-Ferraud on the dogs at Senegal. They have been observed in America on the monkey and on the jaguar.

The *Cutérèbres* belong to America, and it is there that they have been seen to attack man. Europe has only two species of Cuterebra ; they live in Russia where they attack the hare and the rabbit.

To put more precision into this question M. Brauer has given the name of *Dermatobia* to those Œstrids found on man, dogs, and cattle, and reserves that of *Cuterebra* for other Diptera of the same family which do not attach themselves to any particular animal, but have never been observed in man. He gives the following description of the larvæ of Dermatobia :

" Larvæ pyriform, elongated, thicker at the anterior part than behind ; the latter more or less attenuated at the part of the seventh segment in young larvæ. Lateral *bourrelets* indistinct at the anterior segments, well marked at the part of the seventh to the ninth. Skin naked, with the exception of several rows of spines placed along the anterior border of the segments, or across the dorsal part, or at the posterior margin. Spines a little bent, black, transparent. At the time of maturity several eminences (mammelons) become horny at the upper part. One remarks nothing on the buccal hooks, which have always been seen. Posterior stigmas as in the Œstrids."

M. Brauer placed in the genus *Dermatobia* the *Cuterebra noxialis* of Goudot and the *C. cyaniventris* of Macquart, the *vers Macaques* and *Moyocuil,* &c. (Pruvot, ' These,' p. 26).

The Œstrids attack man sufficiently often in the intertropical regions of the old and new world, rarely in Europe ; only a single case is known with certainty, that recorded by Dr. Spring, of Liège. All belong to the dermal Œstrids ; the most important are the *ver Macaque* and the *ver Moyocuil.* Perhaps we must place with them the *ver de Cayor,* if yet this larva is not identical with *Lucilia hominivoraæ.* One has never been able to obtain the perfect insect of any of them, and we know little of their history. None of these insects specially belong to man ; there is no *Œstrus hominis,* and these insects only attack man accidentally.

(*To be continued.*)

# ON PLANTS IN RELATION TO ANIMALS.

By Professor James Buckman, F.G.S., F.L.S., &c.

(*Continued from* p. 92.)

We come now to a review of some of the more active members of the useful natural order Umbellifera.

These consist of a series of plants some parts of which yield active medicinal principles, amongst which none are of greater use or interest than the species which yield the following resinous gums.

1. *Ferula assafœtida.*
2. *Ferula? sagapenum.*
3. *Dorema ammoniacum.*
4. *Galbanum officinale.*
5. *Opoponax chironium.*

} The active principles consist of gum resins.

Here we have a list of five species of plants, all of which are renowned for active principles, which are obtained from different parts of the plants in different species in the shape of gum resins, which have the property of being soluble in alcohol, make a bright and more or less coloured *tincture*, and also of being miscible in water, producing in the quasi solution what is known in pharmacy as an *emulsion*.

1. *Assafœtida* is composed, according to Pelletier, as follows:

| | |
|---|---|
| Resin | 65·00 |
| Gum | 19·44 |
| Bassorin | 11·66 |
| Volatile oil | 3·60 |
| Supermalate of lime and loss | 0·30 |
| | 100·00 |

"The name is said to have been introduced by the Monks in the School of Salernum; but it appears to have been of Oriental origin, and may be, as some have suspected, derived from the word *laser*. Nicolaus Myrepsus, almost the last of the Greek physicians, and who lived, according to Sprengel, about 1227 A.D., speaks of ασαφιτιδα. There are two kinds of *Assa* (*i. e.* laser, Lat. trans.) says Avicenna, one *fetid*, the other *odoriferous*."*

"It is probable that the genus of the plants yielding the stinking gum known as Assafœtida, the devil's guts of the rustic, is the ferula of which it is said the word *ferula* is derived from *ferire*, to strike. The stalks were used as rods for children, because they made more noise than did harm (Loudon). The term ferula is, in fact, an English word to indicate the

* Pereira's 'Materia Medica,' vol. ii, part ii, p. 1703.

instrument with which scholars are beaten on the hand (Walker). Hence, Martial calls it the *sceptrum padagogorum* or schoolmasters' sceptre."*

The gum is extracted from the roots of the plants by making incisions in the upper parts of the root, and the fluid which exudes is quickly converted into a resinous gum, which has only once to be smelt to render it familiar. Still, according to different authorities, we must conclude that there are different qualities of the gum which are derived from other species. The author just quoted tells us that its taste is acrid and bitter, and its odour strongly alliaceous (*i. e.* like garlic) and peculiar, to most persons being remarkably disagreeable, whence the Germans have denominated Assafœtida *Teufelsdreck*, or *Stercus dioboli;* in plain English, *Devil's dung*. However, this dislike to the Assafœtida is not universal, some of the Asiatics being exceedingly fond of it, taking it in their food as a condiment, or using it to flavour their sauces, or even eating it alone. Hence, among some of the older writers, we find it denominated *Cibus deorum*, food of the gods. Captain M. Kinnier tells us that in Persia the leaves of the plant are eaten like common greens, as is the root when roasted; and Lieut. Burnes, speaking of Assafœtida, says, "In the fresh state it has the same abominable smell, yet our fellow-travellers greedily devoured it. But the fondness for this substance is not confined to Asiatics, as I am assured by an experienced gastronome that the finest relish a beef-steak can possess may be communicated by rubbing the gridiron on which the steak is cooked with Assafœtida.

The following account of Assafœtida is chiefly taken from 'Medical Botany,' vol. i, p. 109, in which is given a good coloured drawing of the plant from which the gum is derived.

This Assafœtida is an unbelliferous plant of considerable size, growing chiefly on the mountains in the provinces of Chorasaar and Laar, in the South of Persia.

The root is perennial, tapering, and ponderous, and when fully grown the size of a man's arm, covered with a blackish coloured bark, and beset with numerous rigid fibres near its top: internally white and fleshy, containing a thick, milky, fetid juice. The stalk is round, smooth, striated, erect, and two or three yards in height, about seven inches in circumference at its base, surrounded by several radical leaves, about two feet long, bipinnate, with alternate pinnules, smooth, sinuate, lobed, and of a deep green colour and fetid smell. The flowers are disposed in plano-convex, terminal umbels. The seeds are oval, flat, foliaceous, of a reddish-brown colour, rough, and marked with longitudinal lines, having a porraceous bitter taste.

* Ibid., p. 1703-4.

The gum resin is obtained from the root of the plant, when it is in full perfection, at that season of the year when the radical leaves are decaying; at this time the root is about four years old, the stalk is to be twisted from the root, from which the dirt is also to be removed. In this state it is left for forty days, being previously screened from the sun; at the expiration of this time a transverse incision is made through the upper part of the root, from which a milky juice freely exudes, and in twenty-four hours this is removed and another section made, taking care to shelter them from the sun after each incision. This is to be repeated for many days till the whole of the juice is extracted, after which the root soon perishes. The whole of the juice, which is of a milky nature, is collected into one vessel and exposed to the sun and air to harden, by which it is materially changed in its appearance. We receive it in this country in irregular, various sized masses, externally of a brownish colour, but upon being broken it displays tears of a whitish, reddish, and violet hue; that is accounted the best which contains a number of white and pale red tears. Its smell is exceedingly strong and disagreeable like garlic; its taste is bitter and acid. The properties of this gum resin are much impaired by age, as, by long keeping, its odour is dissipated, in which the activity of the drug chiefly resides.

The Assafœtida is composed of a gummy and resinous matter, yet we cannot obtain a transparent tincture with proof spirit; but it is quite milky, unlike that procured with the rectified spirit, which possesses the properties of the Assafœtida in a concentrated state. By distillation it affords a small quantity of pale essential oil of an extremely strong smell. When rubbed up with water it forms a white, smooth emulsion.

The pharmacopœias contain no less than six preparations of Assafœtida, which are chiefly employed in cases of hysteria, colic, convulsions, worms, &c.; but its principal use is as an antispasmodic.

It also finds a place in the 'Veterinary Pharmacopœia.' Thus Professor Tuson says of it:

"Its active constituents are resinous matter and a volatile oil containing Allyl Sulphide $C_6H_{10}S$.

"*Actions and Uses.*—Stimulant, antispasmodic, vermifuge; chiefly used in treating colic and coughs; given also to dogs suffering from chorea."*

2. *Sagapenum* is obtained from an umbelliferous plant, but the exact species is somewhat difficult of determination; it is said to hold an intermediate state between Assafœtida and galbanum, inasmuch as it savours much of the peculiar flavour of garlic.

* 'Veterinary Pharmacopœia,' by Professor Tuson, p. 46.

Its composition is much that of the former, but it seems to be made milder by a larger quantity of gum. The following is Pelletier's analysis:

| | |
|---|---|
| Resin | 54·26 |
| Gum | 31 94 |
| Volatile oil and loss | 11·80 |
| Basorin | 1·00 |
| Malate of lime | 0·40 |
| Peculiar matter | 0·60 |
| | 100·00 |

The principal preparation in which this gum enters is *Pilula Galbani Composita*, L., and it is used as a warm stimulating purgative in dyspepsia when accompanied by flatulence and costiveness.

3. *Ammoniacum* is obtained from the *Ammoniacum dorema*, principally through the medium of insects, which, as they puncture the plants, cause an exudation of juice, which hardens into guttæ or tears of about the size of ordinary peas; these are rubbed down with water, forming an emulsion, which is employed as a stimulant in bronchial affections, asthma, &c.

The melted gum, either by itself or with mercury to form a plaster, which is stimulative and discutient.

Ammoniacum is also an ingredient in the compound squill pill, which is said to be useful in many bronchial affections.

4. *The Gum Galbanum* is with difficulty referred to the exact plant from which it is derived. It occurs either in tears or masses. The following is a description of the plant:

"The Galbanum is a perennial plant, native of Africa, in the neighbourhood of the Cape of Good Hope, flowering in June and July.

"The stalk is commonly several feet in height, of a purplish colour, and covered with a glaucous exudation; towards the lower part it is woody and naked, but the upper part is jointed, branched, and leafy. The lower leaves are subtrigeminated, standing on vaginant footstalks; the upper ones are nearly simple, three-lobed, irregularly serrated, and of a greyish colour. The principal umbel, which terminates the stem, is large, plano-convex, and composed of numerous radii; the lateral umbels are few and of a smaller size. The involucres consist of twelve narrow, lance-shaped, membranous, whitish leaflets, bent downwards, but the involucels consist only of six leaflets. The flowers are all fertile; the petals are equal, of a yellowish colour, with their tips inflected; the stamina are longer than the petals, supporting yellow anthers; the germen are round, terminating in two short tapering styles; the seeds are oblong and of a brownish colour.

"The Galbanum of commerce is the gum resin that is obtained from the stalks of the plant, from which it sometimes exudes spontaneously; but it is usually procured by making incisions into the stalks a few inches above the root, from thence the juice gradually trickles, and by exposure to the sun and air becomes of a proper consistence. That which is intermixed with the stalks and seeds is preferred by many, but its goodness depends on the number of white tears which it contains. We do not generally meet with many of these particles, for it most frequently comes to us in agglutinated, irregular masses, of a light brown colour; when very dark and of the consistence of wax it should be rejected as impure. A gum resin may be procured from other species of Bubon, but much inferior to the true Galbanum, both in taste and smell. That which is used in this country is chiefly imported from the Levant. It has a strong and disagreeable smell, with a bitterish, warm, and somewhat biting taste. When saturated with water it forms a milky mixture, in which the whole virtues of the drug reside; but in consequence of its being so extremely nauseous very few patients can take it in this form. It contains more gummy than resinous matter, therefore, proof spirit is not sufficiently pure to dissolve it; but the best mensturum is two parts of rectified spirit to one part of water. By distillation it affords a considerable quantity of essential oil."*

Like its allied gums it is used as a stimulative descutient plaster, as also in the form of pills, both especially adapted to chest complaints.

It is used in veterinary practice much as Assafœtida and ammoniacum.

5. *Opoponax* completes the history of this section of the Umbellifera. The best occurs in reddish tears. It is seldom employed, but when it is its effects are much the same as the others of this group, to which it is allied by its composition, as the following analysis by Pelletier will show:

| | |
|---|---|
| Resin | 42·0 |
| Gum | 33·4 |
| Starch | 4·2 |
| Extractive | 1·6 |
| Wax | 0·3 |
| Malic acid | 2·8 |
| Volatile oil, traces of caoutchouc and loss | 5·9 |
| Lignin | 9·8 |
| | 100·0 |

We have now concluded our examination of a very active and

* 'Medical Botany,' vol. i, p. 118-19.

useful group of plants. They all seem to have many properties in common, but vary in point of power and activity, not more, perhaps, than in the composition of their different varieties.

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## PINK-EYE.

By R. Roberts, M.R.C.V.S., Assistant to Mr. Cartledge, Sheffield.

In compliance with an editorial request in the *Veterinarian* of February, I beg to forward an account of the disease commonly known as "pink-eye," as we have met with it here. I think the term muco-enteritis is more significant of the disease.

During the early spring and summer of 1882 we had many cases of this disease in Sheffield and its neighbourhood. The disease made its appearance suddenly, attacking many horses at about the same time, and it disappeared quite as abruptly towards the end of the summer. Recently it has reappeared, and we have a large number of cases under treatment.

When it once enters a stable few horses in that stable escape, but not many are attacked in exactly the same way, and sometimes one or two may escape it altogether.

We have found that animals having wounds on any part of the body take the disease more readily, as if the poison was absorbed through this channel, the worst cases being where quittors, canker, &c., have been present; and in one case, a colt, after being castrated and was recovering from the operation, was attacked with great virulence, which very materially retarded his recovery from the operation, and placed his life in great danger.

With few exceptions most of the animals affected were heavy draught horses between four and six years old.

When the disease runs its usual mild course, the horse looks dull, is very stiff on his limbs, has loss of appetite, the temperature averages about 103°, but the pulse is little affected.

The mucous membranes from the commencement are pink in colour. The following day the horse is probably found much worse, one or both eyes are closed altogether, eyelids swollen and sore, and the colour well marked on their mucous surface; tears flow freely. The limbs may or may not be swollen from the knee and hock downwards. In more severe cases rigors are often present, and the horse stands as if riveted to the ground.

The pulse ranges from 56 to 80 beats per minute, and the

patient remains in this helpless condition. In the course of a few days the eyes open, the horse looks brighter, and may feed a little; he will lie down, and now makes satisfactory progress.

Pulmonary complications sometimes set in, occasionally the larynx alone being affected; at this stage there is great difficulty in deglutition; cough may or may not be present.

In other cases the bowels are affected, the fæces being hard, covered with mucus, often smeared with blood, and great difficulty in defæcation.

Very little excitement sets up increased action in the bowels, which gives the horse temporary relief, but it often goes on to superpurgation, which may be difficult to check.

I am not able to speak of *post-mortem* examinations, as we have had no cases which have ended in death, although we have had reason many times to fear such a termination.

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## ENZOOTIC TYPHOID CATARRH.
## PINK-EYE.

By W. A. Edgar, M.R.C.V.S., Dartford.

The request in last issue of the *Veterinarian* for some of the symptoms and *post-mortem* appearances of the so-called "pink-eye" induces me to forward the following notes of three outbreaks of the affection in this district during the present year:

The diagnostic symptoms of the disease have occurred in all cases with the utmost regularity, but modified in intensity by the age and general condition of the animal when attacked. The first change noted by the "horsekeepers" has been general dulness, a disposition to select the chaff from the corn, as though to masticate the latter required too great an effort, an unusual stiffness in gait, and "cracking in the joints" when constantly shifting from limb to limb in the stable. In this early stage of the malady the rise of temperature is from two to three degrees; pulse full, from 50 to 60 per minute, before any change takes place in the visible mucous membranes. In from twelve to eighteen hours the more grave conditions appear: loss of appetite; in aged and delicate animals the anorexia is complete. Aspect most dejected; ears pendant, the latter with extremities colder than normal; stiffness increased, and disinclination to move or lie down; marked ptosis, the palpebral fissures being almost closed; conjunctiva humid, intensely hyperæmic, and of a brick-red hue. In two cases it was almost livid, in others an icteroid condition existed; the ductus ad nasum closed from the humid

state of its mucous membrane; the lachrymal fluid flowing from inner canthus down the face on either side, and at this stage most altered in character. The same applies to the nasal catarrh, which is now observed in a small stream dripping from the nostrils. Schneiderian membrane is of a bright red colour, but changing during the next forty-eight hours to a yellowish-purple or leaden hue, covered with a tenacious, purulent mucus. In some cases the exhaled breath is fetid to a degree; in two cases petechiæ were present. When the nasal catarrh assumes this condition the cornea becomes intensely infiltrated with a yellow, lymph-like deposit, apparently between the layers of cornea elastica. The effusion rarely extends above the pupillary opening, so that the animals are not quite blind; the conjunctival vessels over the sclerotic are engorged with blood; the lachrymal fluid becomes tenacious, opaque, and aggregates on and around the eyelids, causing great discomfort to the patients if not repeatedly removed with a warm; moist sponge. In two or three cases I have found effusion around the submaxillary lymphatic glands, but no pain on palpation; no laryngeal symptoms. Pulse ranges at this stage from 65 to 80 or 90 per minute; respirations not much disturbed, except when pneumonic complications occur; they are then 40 to 50, with nostrils widely distended, a stream of brownish-red fluid flowing from them, the odour of which, in one fatal case, was so disgusting that the attendants would not approach the animal. There was evidently gangrene of mucous membrane or lung-tissue. Temperature in all cases above 103°; the highest noted was 106·4°, average about 105°. In only one patient have I found an erratic temperature; this was a brougham horse. First day of attack in morning temperature 105·8°, in evening 102°; second day 103°, fourth 105°, followed, as in all except fatal cases, by a steady daily decline of from ·5° to 1°. There were no other sudden changes from high to low. Fæces generally relaxed; in the severe enteric form fetid diarrhœa, acid reaction. Urine, in one case examined, straw colour, clear, strong acid reaction, sp. gr. 1023, no albumen; microscopical examination revealed no departure from normal; there was a great deficiency in carbonates.

From the second to the fourth day œdema of the extremities commences, which is most intense and characteristic in eight successive cases. One hind limb first commenced to swell, the effusion extending from the upper part of the femoral vein to coronet, confined to inner aspect of thigh until it reaches the lower third of tibia; it then extends around the limb and hock downwards. In some cases the œdema terminates abruptly in rope-like bands, as in purpura hæmorrhagica: in several cases only one leg has been affected, presenting almost

the appearance of inflammatory œdema (excepting the intense pain and immediate abduction of limb on palpation in that affection); slight uneasiness is manifested on pressure to the œdematous limb. From ten to fifteen hours after the first hind limb becomes affected the other gradually assumes the same condition, followed by effusion of the fore extremities; in the latter it has in no case been so marked as in the former. This intense œdema of the limbs renders it most difficult for the patient to lie down or move about the box. Well-bred animals do not appear to suffer so severely from the œdema as draught horses.

A brougham horse and pony, affected very severely in other respects, had scarcely any swelling of limbs. In the case of the pony, however, at the third day of attendance slight cerebral symptoms were manifest; the nose was placed at the bottom of the manger and the forehead rested against the wall. The animal appeared to be suffering from intense headache; this passed off in a few hours. The pony was taking a full allowance of corn, &c., from day to day, and the severe symptoms were passing off, when on the eighth day he suddenly lost the power of controlling the movement of the hind limbs; the fore limbs were abducted to prop up the front part of the body, and the hind quarters were rested heavily against the side of the stall. If an attempt was made to push him to the other side he staggered back immediately, perfectly helpless. This condition lasted about two hours, and then passed off as rapidly as it had commenced. The animal kept eating all the time, was perfectly sensible when spoken to. Pulse was, as on previous day, 60. Curiously enough, when touched upon the quarters (the pony was a stable-kicker) the tail was viciously moved up and down, yet there was no power to move the limbs. The same symptoms were presented on the sixth day for a short time; but the owner did not remark about it until the second attack, when he sent for me to see the pony "in a fit." A steady improvement has continued up to the present—sixteen days from the first symptoms of disease. The urine examined on twelfth day. Urine from the same pony, previously noted third day, was very cloudy, reaction neutral, sp. gr. 1038, highly charged with carbonates.

When the pyrexia has attained the maximum one or more forms of the malady become manifest with greater or less severity. The capillary meshes are apparently the outlet of the virus, establishing the pneumonic, enteric associated with hepatic, cutaneous, or cerebro-spinal conditions. The pneumonic, in my experience, has been the most fatal form, two animals having succumbed to this phase. In the enteric condition the diarrhœa lasts from one to three days, and greatly increases the debility

of the patient. When the effusion in the extremities has been very marked the other symptoms have been less severe in proportion; the animal is not so dejected, and makes a rapid recovery if exercise be allowed when the appetite returns. The nasal and lachrymal catarrh quickly passes off, the most persistent symptoms being the effusion in the cornea, the peculiar hue of the conjunctivæ, and the œdema of the extremities. Seventy per cent. of animals exposed to infection become affected.

In the following case I had an only opportunity of making a very rough and hurried *post mortem:*

Case 2.—Draught gelding, aged about twenty years. Chronic injury to spine. An indifferent "feeder" when in health. Died on fourth day of attack. Symptoms had been intense, especially diarrhœa; complete anorexia; but on third evening was left by attendant at about eight o'clock, apparently more cheerful, and eating a little. Found dead on fourth morning, having evidently fallen and died without a struggle. Lungs *intensely* hyperæmic, especially left whole of the pulmonary pleuræ *covered with petechiæ* from one sixteenth to half an inch in diameter; frothy purulent mucus in trachea and bronchi, which had been discharging from nostrils during life. Right and left heart contained large firm clots; the fibrin had separated at upper part, and extended into the large vessels. L arge *hyperæmic patches* existed in the large intestines. There had been severe diarrhœa for two days. Liver was very much enlarged and softened. This was probably a chronic condition. Kidneys slightly congested and dark. No other abnormal conditions were noted.

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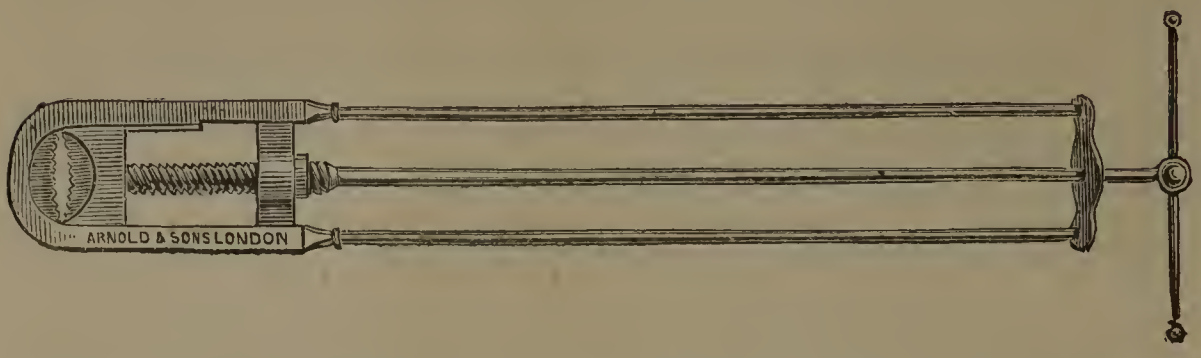
## DENTAL SURGERY.

### By the Same.

Having used the instrument described in this paper for the past three years with considerable success, I venture to bring it to the notice of the profession through the pages of the *Veterinarian*. Its general outline is depicted in the accompanying woodcut.

By the central screw motion an enormous cutting power is obtained with a very small amount of steel, which greatly reduces the weight of the instrument, which, for obvious reasons, is an important point The cutting edges are made tooth like, the points converging at the centre, and being very sharp they obtain an immediate and immovable grip upon the portion of tooth to be

excised. By digital manipulation the size of the tooth is calculated, and the instrument screwed up before insertion into the mouth. This makes the actual operation much quicker, and




prevents the animal becoming impatient. An even section is made in the actual direction in which the incisor is adjusted, and the instrument will remove the hypertrophied portion of any tooth. Its action is most humane, the operation being, so far as I have been able to form an opinion by the quietude of my patients, perfectly painless.

There is no risk as with the shears of cutting the buccal membrane or gingivæ in excising a posterior molar. In this case if the mouth from the extreme length of the tooth cannot be sufficiently opened with an ordinary mouth-iron, the leather mouth-expander should be used.

The incisor is manufactured by Messrs. Arnold and Sons, West Smithfield, London.

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## EXISTING PRACTITIONERS.

### By M.R.C.V.S.

The purport of the letter of "Existing Practitioner" in your issue for December last is calculated to throw doubt or discredit upon the members of our profession, to suppose that they would in their position wilfully traduce the character of the old-practising farriers (if left in their hands) in applying for registration. This, however, is mere nonsense, for I doubt whether any solitary instance of such unfairness could be detected in any one member of our profession.

There are, however, many of the old farriers who evidently harbour a dogged antagonism to us, as though we were incorporated for their special annihilation. If, as in some of the existing institutions of our country, our members receive aid from the State to the prejudice of outside practitioners and their existences substantially ignored, then there might be some reason for this spleen and caustic feeling, but as all are free and

a prospect of a legal form of registration propounded, I trust this animosity will cease and a gentle feeling prevail.

It does, however, seem anomalous that professional men have to compete with those who have no pretention to a scientific or even a literary training, nor any set system of pathological knowledge; and was it not for the boasted freedom of England this would long ago have been suppressed by rejection of their practises.

Doubtless there are some who have not passed an examination who may have done good service in their sphere, men who have given themselves to severe study, added to great perceptive powers, and who in the right direction may have been very successful in their business. It would be hard perhaps for such men to be totally prohibited from practising under proper rules of registration, and to this they themselves could rightly make no objection.

But there are others, and not a few, who have neither rule, system, science, nor character, mere charlatans preying upon the ignorance and prejudices of their dupes, who kill without responsibility, and poison in their ignorance past remedy. This is the class which ought to be brought under the operation of abstention, and sent to their proper duties in which labour forms the chief feature.

In conclusion, let me advise Mr. "Existing Practitioner" and his associates to look with less distraction at the position of those he has thought proper to criticise; at the same time I point him and others to the resolutions passed at a meeting held at Leeds on December 13th, 1882, relating to this subject.

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## NOTES OF TWO CASES OF SARCOPTIC MANGE IN THE HORSE.

By Layton J. Blenkinsopp, Student, Royal Veterinary College, London.

On January 11th a chestnut gelding was brought as an out-patient to the Royal Veterinary College affected with a skin disease, which, from its appearance and history, Professor Robertson diagnosed as a probable case of sarcoptic mange. There was a uniform eruption of a vesicular character over the whole of the body, accompanied with great irritability of the skin, which was covered with small scabs. These scabs were more or less adherent to the cuticle, and on their removal moist denuded surfaces remained, in the centre of some of which a minute punc-

ture could be made out with the aid of a lens. The true dermal tissues were in some situations greatly thickened; this was especially noticed over the neck and shoulders where the skin was thrown into verticle folds, giving the animal a peculiar appearance. The man who brought the horse said that it shared a stable with another, a grey gelding, which was also affected with the same disease. He was told to bring this animal on the following Saturday and he received a solution of soluble phenyle to dress the chestnut horse with, and the following medicine:

℞ Acid. Arseniosi, gr. iv;
Potassi Bicarb., ʒiv. Misce.
Ut fiat pulvis. Mitte, vj.
Sig. One powder to be given daily in the animal's drinking water.

The grey gelding when seen on the following Saturday was found to be suffering from skin disease similar to that affecting the chestnut, but the malady had in his case hardly reached such an advanced stage. This horse was also ordered to be dressed with a solution of soluble phenyle.

The man who was attending these animals now complained that he was also suffering from a skin affection which he said he had caught from the horses. On examining him there was found a uniform eruption over the front of the chest, the arms and thighs, resembling that produced by *Sarcoptes hominis*, but there were no lesions between the fingers as is usual in cases of ordinary itch. He said he first felt the itching, to any great extent, about the beginning of December, some three weeks after he had taken charge of the horses, which were at that time affected with the disease. He immediately took the precaution to isolate himself from the other members of his family, and none of these appear to have been attacked. The itching was intense, more especially when he got warm and at night. He was advised to wash all the affected parts thoroughly clean, and to dress them with common sulphur ointment.

Both horses were again brought to the College on January 18th when there was no very marked improvement, but nevertheless the skin was much cleaner and softer than before. They were now dressed with a mixture of one part of oil of tar and ten of linseed oil. The man was much better, there being only a slight eruption on the right breast and arm.

The horses were next seen on February 1st when the grey was greatly improved, the skin being soft and pliable, and nearly all the scabs had disappeared, the animal having been washed with warm water, soap and soda, on the previous day. It was ordered to be again dressed with a solution of soluble phenyle.

The chestnut horse had not made so much progress although it

had also slightly improved, but as the animal was now very lame and was of small value if sound, the owner was recommended to have it destroyed. The groom had now quite recovered.

When the grey was last seen, on February 15th, it was suffering from a general eczema the result of the irritation caused by the parasites, and there was a patch of skin in the submaxillary space where the acari seemed to be still flourishing.

Crust and epidermic scales had been on each occasion obtained from the horses and carefully examined under the microscope, but without demonstrating the presence of a single acarus, although Professor Robertson felt confident of their existence. When the chestnut was destroyed I obtained a piece of the skin in which I was fortunate enough to find several specimens of *Sarcoptes equi*, all of which were either females or larval hexapods.

This form of mange seems much more prevalent in London and our larger towns than it is usually considered to be, but from the great difficulty of obtaining the parasites from a living host one is not always able to recognise it.

A considerable part of the interest of these cases consist in the fact that the acarus upon which the irritation depends is evidently capable of existing for a long or shorter period in the human skin. This is a fact noted by several observers, still information is not sufficiently definite to determine the length of times this existence may be carried out. An attempt in this instance was made to convey the acarus to the human arm, but did not succeed.

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## Pathological Contributions.

### CATTLE PLAGUE.

This disease still continues to prevail in several provinces of Russia; it is reported to be diminishing in the district of Berdiansk, but is spreading in a severe form in the Mariapot district.

In the district of Kossova, in Turkey, an outbreak occurred early in February in the village of Aivana.

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### PLEURO-PNEUMONIA.

Reports from the Netherland state that between the 31st December, 1882, and the 27th January, 1883, one case of this

disease occurred in the Province of South Holland; six cases were detected in animals which were slaughtered in the Spœling district.

From America we hear that eight cases were reported in Maryland during the month of January.

In Great Britain this disease still continues to decrease. In the four weeks ended January 27th, 1883, only nineteen outbreaks were reported, in which forty-eight animals were attacked. This is a smaller number both of outbreaks and animals attacked than in any corresponding period during the previous year.

## FOOT-AND-MOUTH DISEASE.

Since its reappearance in this country in 1880, foot-and-mouth disease has been chiefly confined to England and Wales. In the months of December and January it spread rapidly in England, but during February it appeared in Ireland, from which country it was imported into Scotland, and reappeared in Wales, which had been free from the disease during the previous six months. This rapid extension of the disease in Great Britain led to the passing of an order which continues in force until the 16th March, and prohibits the sale of fat stock in England, Wales, and Scotland, except by license of the local authorities, while during the same period sales of store stock can only be held under a license of the Privy Council.

During the six weeks ended February 10th, 1883, there were 753 outbreaks of foot-and-mouth disease reported in Great Britain, and 15,716 animals attacked.

By a recent order of Council, local authorities in Great Britain may prohibit or regulate the movement of animals into their district from the district of any local authority in Ireland.

## SWINE FEVER.

During the four weeks ended January 27th, 1883, 166 outbreaks of this disease were reported in Great Britain and 799 swine were attacked, 131 of which died before the slaughter of the diseased animals could be carried out by the local authorities. These figures show a considerable decrease from the numbers of the previous months.

## Facts and Observations.

A Warning to Vegetarians.—The address of Mr. Thomas at a recent meeting of the Royal Medical and Chirurgical Society, on the life-history of the liver-fluke, as interesting as it was instructive, wound up with a word of advice, viz. that we should abstain from eating watercress. We do not suppose that in an assemblage of men, all more or less well versed in physiology, any vegetarians were present; if there were such we do not envy their feelings on hearing this warning, or on listening immediately afterwards to the remarkable case narrated by Dr. George Harley, so strongly confirming the view that eating watercress might be attended with danger. However, it occurs to us that, seeing what a powerful agent we have in salt, if the watercress were to be well rinsed out in a moderately strong solution of salt before being washed in fresh water, or instead of it, the embryos and ova would certainly, and their intermediary host in all probability, be destroyed.—*Medical Times and Gazette.*

Extraordinary Fatality.—The *Colonies and India* reports an extraordinary fatality from British Guiana, where an inexperienced traveller having, as is the custom in tropical countries, taken a refreshing draught from the stem of one of the many water-holding plants which thrive in the forests, qualified his cold refreshment by a "nip" of rum. Shortly afterwards he died in excruciating agony, and a *post-mortem* examination showed that his internal organs were literally sealed up with india-rubber. He had imbibed the sap of the *Mimusops balata,* the juice of which coagulates and hardens in alcohol, and the rum had had its usual effect in the poor man's stomach with necessarily fatal results.—*Times,* Nov. 25, 1882.

Incombustible Writing and Printing Paper.—Asbestos of the best quality is treated with potassium permanganate, and then with sulphuric acid; 95 per cent. of such asbestos is mixed with 5 per cent. of wood pulp in water containing borax and glue. A fire-proof ink is made of platinous chloride and oil of lavender, mixed, for writing with Indian ink and gum, and for printing with lamp-black and varnish.—*Chemist and Druggist.*

Eggs.—The importation of eggs into Great Britain last year was 750,000,000, or about two dozen for each man, woman, and child in the country. Their money value was over £2,000,000.

## Review.

Quid sit pulchrum, quid turpe, quid utile, quid non.—Hor.

*Notes on Filaria Disease.* By Patrick Manson, M.D., Amoy, 'Customs Medical Reports,' 1882; see also 'The Lancet' for Feb. 10, 1883.

*Additional Notes, &c.* By the same, 'Customs Gazette,' 1880 and 1881.

*Report on Hæmatozoa.* By the same, 'Customs Gazette,' 1877.

*On the Periodicity of Filarial Migrations.* 'Journal of the Quekett Micr. Club,' July, 1881.

*Observations on Filaria.* By Drs. Manson, Somerville, Bancroft, Silva-Lima, Mortimer Granville, Cobbold, and others, 'Quekett Journal' for May, 1880.

*On Filaria sanguinis hominis.* By Prospero Sonsino, M.D., 'Med. Times and Gazette,' 1882.

*Filaria immitis* (in the Dog's Heart). By S. G. Shattock, 'British Medical Journal,' May, 1882.

A vast amount of literature has of late appeared on the subject of filariæ and filarial disease, and in this connection most positive advances both in human and comparative pathology have been made. It is not possible to recall the steps of progress one by one, but it is at least desirable to indicate the principal sources of information. Foremost amongst the workers in this field stands the name of Dr. Manson; whilst, after him, we must signalise the labours of Lewis, of Stephen Mackenzie, of Myers, and of Sonsino. Dr. Manson's labours have been continuous and incessant, and only those who have watched the development of the whole subject can adequately appreciate its importance in relation to human and veterinary medicine. In addition to the above-named workers, at least half a dozen Brazilian physicians have been studying the filariæ; and conspicuous amongst these stand the names of Araujo, Silva-Lima, Magalhães, J. de Moura, F. dos Santos, and Dr. Alfredo da Luz. Our countrymen practising at Bahia, namely, Drs. Paterson and Hall, have also contributed valuable data, especially in a paper published in the *Veterinarian* for January, 1879, entitled "Facts in Filariasis."

Dr. Patrick Manson's most recent communication on the subject of filaria, and the periodicity of the appearance of that parasite in the blood, is full of interest not only to physiologists and pathologists but to medical and veterinary practitioners

generally, because it makes important additions to the source of our knowledge in respect to phenomena which are likely to throw new light on the whole subject of periodicity in health and disease.

We will not venture to employ space for the discussion of the whole question, but proceed to notice certain points that appear to be of special moment. It must now be admitted that the filaria is (1) essentially a parasite of the lymphatic system; (2) that its *appearance* in the blood is occasional or, it *may* be, excursional. Dr. Manson tells us that the parent worm lies on the distal side of the glands, and under ordinary circumstances discharges the embryos viviparously. The young filaria, which measures $\frac{1}{3000}$th of an inch in diameter, can make its way or be borne by the lymph-current, as the case may be, through the lymph-channels of the gland, and thence to the thoracic duct and into the blood; whereas the ova, which measure $\frac{1}{750}$th or $\frac{1}{500}$th of an inch, if aborted, block the lymph-channels and mechanically cause local lymphatic disease. This throws a new light on the etiology of certain diseases, and it is extremely interesting as well as important.

Dr. J. Mortimer Granville thinks that it is not very difficult to understand that there must be some periodicity of the appearance of filariæ in the blood, seeing that when chyle is entering the thoracic duct from the lymphatics of the intestine (during the absorption of food) the direct current from the peripheral lymphatics is necessarily to some extent impeded. Thus we know that in the intervals of food absorption the thoracic duct contains pure lymph, or, in other words, the flow from the glands and the distal vessel is free. It is obviously under the last-mentioned condition that we should expect to find any floating parasite which had its habitat in the distal lymphatic system making its way or being carried into the blood. As Dr. Mortimer Granville has said, however, there still remains for us the question as to what becomes of the filaria when it disappears from the blood. Does it, he asks, go back into the thoracic duct and the lymphatic system? This scarcely seems possible. It is not easy to understand how it can make its way up-stream against the flow of chylous lymph; neither is it easy to comprehend how it can find its way out of the blood-vessels.

We agree with Dr. Mortimer Granville that the filaria undertakes and carries out a truly marvellous journey if it goes back to the subclavian veins and thence into the ducts. There are, as we know, only two openings of communication between the lymphatic and the venous system; and it seems scarcely reasonable to suppose that the filariæ make their exit from the blood by these channels when they cease to be apparent.

Moreover, if filariæ returned to the lymphatic system during the period of its disappearance in the blood, specimens would have been found in the pus of the abscess formed near the orifice of the duct in the case of Dr. Stephen Mackenzie's case (*Lancet*, May 27th, 1882, p. 869). What then becomes of them?

The materials for a final judgment are not yet before us, but Dr. Mortimer Granville has submitted two alternative hypotheses for our consideration. Those who enjoy the opportunity of studying filariæ in detail may think these suggestions worthy of attention, especially in relation to further experimental inquiry. The first theory propounded is that the parasites do not actually leave the blood during the period in which they cannot be detected in portions of this fluid extracted for examination, but that they adhere to the walls of the blood-vessels. The rapidity of the flow of the blood, and its tension under the vaso-motor activity of the earlier hours of the period of wakefulness and functional energy being too great for the free movement of the eel-like worms among the blood-corpuscles. The animal, it should be remembered, he urges, is only a little broader than the diameter of the blood-corpuscle (filaria $\frac{1}{3000}$th, blood-corpuscle $\frac{1}{3500}$th), and it would necessarily be roughly used if the corpuscles were rolling along rapidly in a compressed current. It is easy to conceive that as the blood becomes more active, and its corpuscles increasingly oxygenated and energetic, the filariæ may wriggle out of the main stream and lie close, perhaps cling, to the walls of the vessels, in this way escaping detection. If opportunity should offer for the examination of a small tract of living vascular tissue taken from a filarious subject this hypothesis might be readily tested. The alternative suggested is that filariæ pass out of the blood with the serum by transudation at the periphery, and are taken up again as the serum is taken up by the lymphatics. If this last should be the explanation of a phenomenon which, whatever its cause, is certainly a very remarkable one, it would be easy to see how the periodicity occurs. Thus, it will be evident, this transudation takes place at the periphery, chiefly, if not exclusively, when the capillary vessels are tense and the blood-pressure is at its highest. At this time, also, the free flow of lymph from the distal lymphatics into the blood is, as we have seen, to some extent checked by the more active and central afflux of chyle. If, therefore, the special habitat of filariæ be the peripheral lymphatic system, we should scarcely expect to find the parasite in the blood during the period of greatest activity and nutrition. If the parent filaria lies and propagates chiefly in the distal lymph vessels, it is reasonable to suppose that the parent worm is, in the first instance, introduced into the body from without, and, it may be,

deposited by the mosquito in the act of biting. Dr. Mortimer Granville points out that the extrusion of filariæ from the capillary blood-vessels with the serum, and its subsequent re-entry into the lymphatic system from which it originally passed into the blood, would afford an all-sufficient explanation of the local phenomena of those diseases with which filaria is associated. The *possibility* of this egress and ingress of filariæ must, in Dr. Mortimer Granville's opinion, be conceded when the migration of leucocytes is remembered. The diameter of filariæ is, as we have already remarked, only $\frac{1}{3000}$th of an inch, whilst that of the leucocytes averages $\frac{1}{2500}$th; and the "wriggling" powers of the one may answer the same purpose as the amœboid movements of the other. If we understand Dr. Mortimer Granville correctly, he does not assert that either of these hypotheses is the true one; but they appear to be worth bearing in mind, with a view to further research. We cannot, indeed, profess to agree with him. We are confident that wherever the parent worm is found it has migrated thence from the stomach.

Another point of moment may also be stated interrogatively. Is it certain that the filaria is so very uncommon, as it is at present supposed to be? As yet the subject has not been extensively investigated. It is beyond question that many of the phenomena to which we have been accustomed to attach clinical importance as indications, even pathognomonic, of disease are not essentially morbid—for example, the occasional presence of albumen and sugar in the urine. Dr. Mortimer Granville thinks there are grounds for supposing that a very large proportion of young men have "albuminuria," as it used to be called, as a not uncommon occurrence after any exceptional burst of brain-work, or even after prolonged physical exertion with excess in feeding; and he is confident that sugar in the urine is a not unfrequent result of cerebro-spinal irritation, particularly when any one of the nerves having a deep origin beneath the floor of the fourth ventricle happens to be specially irritated. He thinks it possible that parasites akin to filaria would be found in the blood or lymph—where filaria, if present at all, is always to be found—in many of the obscure maladies in which the peripheral lymphatic system is in a morbid state, and possibly also in many individuals who enjoy apparent health, if only due search were made with a full recognition of the periodicity that is likely to obtain, and of which, as he supposes, those changes of speed, tension, chemical constitution, and the like, of the blood-current, that take place at ryhthmal periods are the efficient causes. Pathological science has made a great stride in recent years by the recognition of living organisms as the concomitants of disease. Dr. Mortimer Granville does not think it is as yet demonstrated

that the presence of the organism is causal. We must not too hastily jump to conclusion on this point. In this, as in other departments of pathological work, it is easy to mistake the effect for the cause, as in the sclerosis by prolification of connective tissue which *follows* the atrophy of nerve cells instead of being the cause of their decay! All these matters will come right in the end, but omissions and mistakes in treatment are readily made when the pathologist is also the therapeutist. We agree with Dr. Mortimer Granville in thinking that, so far as the production of local disease by mechanical obstruction of the lymph channels is concerned, Dr. Patrick Manson's hypothesis is at once telling and satisfactory; but if we are to get to the bottom of what is a most interesting and miraculous mystery, "it may, perhaps, be fairly urged," says Dr. Mortimer Granville, "that for the present we must be content to study the filaria as an independent animal organism, as Dr. Cobbold (to whom we are indebted for the introduction of this subject to the medical profession in England) would himself regard it."

Whatever view be finally adopted we think that the fullest credit is due, not only to Lewis and Bancroft, to Myers, to Mackenzie, and to Sonsino, but in the most especial manner to Dr. Patrick Manson, the real discoverer of "filarial periodicity;" though the term, we believe, was first introduced by the late President of the Quekett Microscopical Club. Be that as it may, it is a happy circumstance that so many workers and thinkers should thus devote themselves to the advance of the healing art.

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## Extracts from British and Foreign Journals.

### SECOND REPORT OF EXPERIMENTS ON THE DEVELOPMENT OF THE LIVER-FLUKE (*FASCIOLA HEPATICA*).

By A. P. Thomas, M.A., F.L.S., Balliol College, Oxford.

My experiments on the development of the liver-fluke were continued during the summer and autumn of last year, and other experiments have been performed during the present year, or are still in progress.

Renewed search was made for the intermediate host of the liver-fluke, and I again endeavoured to infect molluscs with the embryo.* These experiments have been almost entirely confined to fresh-water snails. From the consideration of the

* Our thanks are due to the Journal Committee of the Royal Agricultural Society for kindly allowing us to take electrotypes of the lignographs which illustrate Mr. Thomas's valuable paper.

geographical distribution of the liver-fluke, and of the various species of mollusca, I was led to strongly suspect *Limnæus pereger* of being the host of the long-sought larval form. The only two fresh-water snails found in the Faroe Islands, where the liver-fluke is very common, according to von Willemoes-Suhm,* are *Limnæus pereger* and *L. truncatulus*. The only aquatic pulmonate in the Shetland Islands,† where the fluke also occurs, is *Limnæus pereger*. If then, the, bearer of the larval form of *Fasciola hepatica* is a fresh-water snail, there is a strong case made out against *Limnæus pereger*.

But the question naturally presented itself whether more than one species of mollusc might not be able to act as carrier of the larval form. During previous investigations I had come across numerous forms of cercariæ, and many of these occurred in two or more species of molluscs, these again being frequently not the same species as those in which other observers had found the same cercariæ. I believe that the larval forms of trematodes are not so closely restricted to certain intermediate hosts as was formerly supposed, but that they may occur in any species which do not differ too widely either in the nature of their tissues or their habits of life. Some species will, however, be more sensitive than others to such differences.

It was therefore considered desirable to repeat infection-experiments on a number of our common water-snails. The common occurrence of the liver-fluke is perhaps partly due to several species of snails being able to serve as intermediate hosts. *Limnæus truncatulus*, in particular, I was inclined to suspect, as it was almost the only species of water-snail occurring on the clearly circumscribed area of infection at Wytham, mentioned in my former paper,‡ my suspicions being strengthened by the discovery of a peculiar species of cercariæ in this snail, taken from a boggy place in one of the infected fields, a field in which I had myself seen a badly fluked sheep that summer, as I can testify from the examination of its liver. The habits, also, of *L. truncatulus* render it open to suspicion, as it, even more than *Limnæus pereger*, often leaves the water and crawls up the stems of water-plants and amongst the grass, &c., on the margins of ditches, and thus is liable to be eaten by stock feeding near the water. It may be found in very small quantities of water, such as slightly boggy spots in the centre of a field. But I was un-

* 'Zeitschrift für wissenschaftliche Zoologie,' vol. xxiii, p. 339.

† Forbes, 'British Association Reports,' 1859, p. 127.

‡ "First Report of Experiments," 'Journal of the Royal Agricultural Society of England,' vol. xvii, 1881, p. 19.

fortunately unable to obtain specimens of *L. truncatulus* last summer, the localities near Oxford in which I had formerly found it were searched in vain. I went out repeatedly in quest of this snail, having on several occasions the skilled assistance of my friend and colleague Mr. W. Hatchett-Jackson, but we never found any other trace of this species than the empty shells. It could not be discovered in the localities given for it by Whiteaves in his paper on the Mollusca inhabiting the neighbourhood of Oxford.* My friends at a distance were appealed to, but were unable to assist me. The comparative freedom from rot of sheep in the neighbourhood of Oxford last year may be due to the real scarcity of this snail. This year, however, there were floods in July, and the waters of the Isis brought it down in vast multitudes; most of the examples were small, less than a quarter of an inch in length. So numerous was it, that a single sweep of a small hand-net repeatedly gave me more than 500 examples, and this was in a ditch where last year I could not obtain a single *L. truncatulus*. All along the margins of the ditches the ground was covered with them, and they were found abundantly on the flooded grounds when the flood-waters had retired. A favourite position is on the under-surface of the blades of grass, not far from the damp roots, so that sheep grazing on such ground would inevitably eat large numbers of them, and as the size is small (the commonest variety only reaches the length of $\frac{1}{4}$ in. to $\frac{2}{5}$ in.), and the shell delicate, they would scarcely attract the notice of the sheep.

On returning three weeks later to the ditch when *L. truncatulus* had been found peculiarly abundant I was unable to find a single example alive. As I had not sufficient leisure on this visit to examine the ground near the ditch, I returned for the purpose of doing so eight days later. There had been dry weather since the flood, but early that morning heavy rain had fallen. I found specimens of *L. truncatulus* out on the gravel of a path near the ditch, and these seem to have crawled out of the grass when revived by the rain. At the roots of the grass, along the margin of the ditch, others were found in abundance. Some few shells were quite empty, but the majority contained the dried remains of the snail, which had shrunk far back into the spire of the shell. Most of these appeared to be quite dead, but were however merely dormant, for on placing them in water the tissues imbibed moisture and assumed their normal bulk, and after a few

* 'Proceedings of the Ashmolean Society,' 1857.

hours the snails had regained their full activity, and were seemingly none the worse for their prolonged desiccation.

To give an idea of their abundance, Mr. Hatchett-Jackson and I collected from a comparatively small strip of ground at the side of the ditch mentioned, and within two hours, over 400 examples, and of these more than 300 are now living in my aquaria. When these snails are kept in an aquarium they habitually crawl out of the water, and if not constantly put back will dry up on the sides of the vessel. Indeed, it may be well to note here that *L. truncatulus* requires special precautions to keep it healthy and active in confinement. It is clear to me from experience gained in this investigation that the species of snail under consideration, when left on the fields by the passing away of a flood, continues to wander and feed so long as the bottom of the grass remains moist. It is equally clear that the numbers so left are recruited from surrounding ditches and streams. A drought may render the snail dormant, but, unless too long continued, it revives at the first shower of rain. If there are fluke-eggs on the ground, and the season is wet enough for these to develop, the *L. truncatulus* will most certainly be infected with the larval forms of the liver-fluke, for, as will be seen further on, I have been able to prove that *Limnæus truncatulus* is the principal intermediate host of this destructive parasite.

The snails upon which my infection-experiments were tried last summer, were *Limnæus pereger, L. auricularis, L. palustris, Planorbis marginatus, P. carinatus, P. vortex, P. spirorbis, Physa fontinalis,* and *Bithynia tentaculata.* I was here to a great extent going over experiments already tried, at least for some of the species, by various workers as well as by myself during the previous summer, but always without success. As the cause of this want of success might lie partly in the abnormal conditions of snail-life in the laboratory, the experiments were performed in large aquaria, and much trouble was taken to secure favourable conditions of temperature, abundant food, &c., for the inhabitants. But though I obtained evidence that the embryos of the flukes do enter the snails, I was unsuccessful in obtaining any further development.

### *Experiments with Limnæus truncatulus.*

On obtaining the snails I had so long been searching for, I exposed a number to infection by placing fluke-eggs and free fluke-embryos in the vessel with them. The snails were speedily found to have afforded a suitable place for the further

development of the embryos, and of those examined up to the present time all have proved to be infected, often containing as many as eighty embryos. Indeed, the infection was too successful, for about the tenth day many of the snails began to sink and die, simply because they were exhausted by the excessive number of parasites, so that at the end of the fourth week I had only two left alive out of the eighty that had been infected.

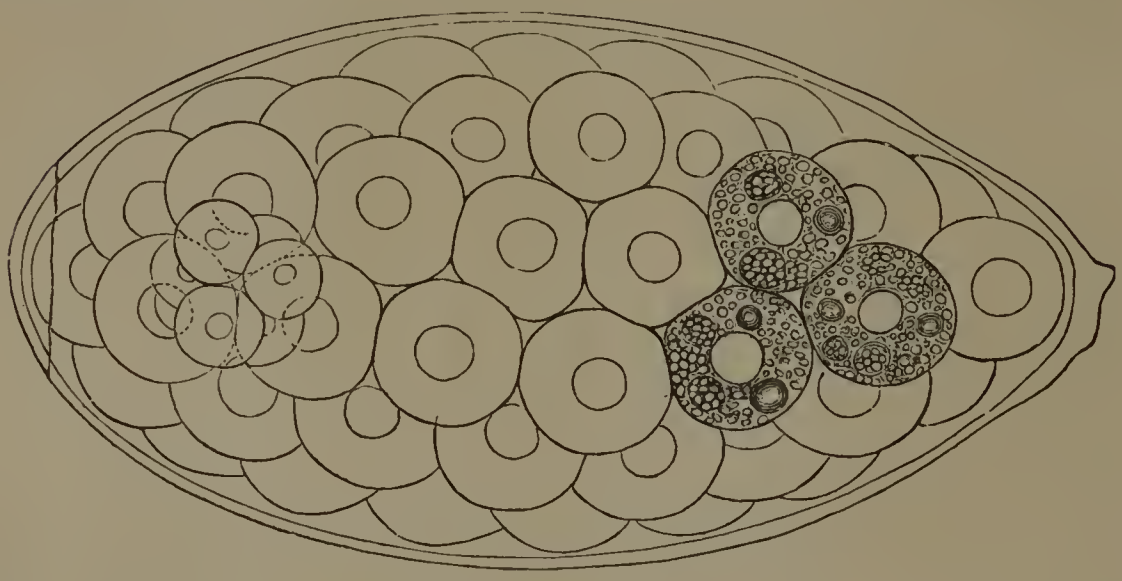

FIG. 1.—Egg of the liver-fluke examined shortly after it was taken from the liver of a sheep. At one end of the shell may be seen the line marking off the lid, and a little below, the embryo in a very early stage of development, and surrounded by the secondary yolk-spheres, only three of which have been filled up. Magnified 680 diameters.

Before describing the changes which the embryo passes through, I will briefly mention its more important characters, referring to my former paper for fuller details. The free embryo of the liver-fluke has a bluntly conical form (see Fig. 2). The broad end is directed forwards, and in its centre is a head-papilla which is ordinarily short and blunt, but when employed for its purpose as a boring-organ becomes long and pointed (see Fig.). The whole surface of the body, except this head-papilla, is covered with a layer of flat cells, arranged usually in five rings around the body, and carrying long cilia, by means of which the animal swims rapidly through the water. Beneath these outer ectoderm cells is a layer of granular tissue, which contains transverse and longitudinal muscle-fibres. The longitudinal are more feebly developed than the transverse, and are only seen with difficulty. At the anterior end the deeper layer of tissue contains the two crescentic eye-spots, which are now in contact, and are formed by two cells containing dark pigment. About the middle of the body on each side is a large tongue-like cilium in constant motion within a long funnel-shaped space. Each cilium

is borne by a nucleated cell. Within the body-wall of the embryo is a space occupied in front by a granular mass in which no cellular structure can be seen, but which is probably a rudimentary digestive tract, and is filled behind with clear round nucleated cells—the germinal cells.

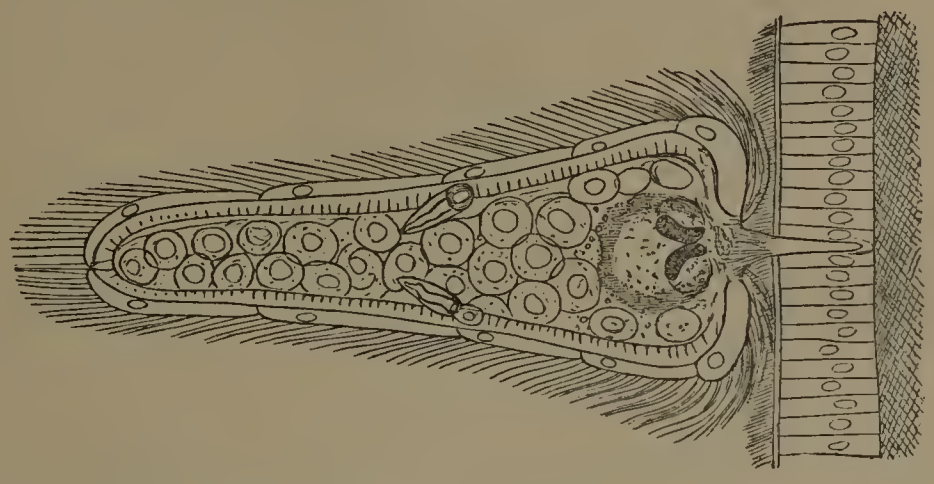

Fig. 2.—Embryo of liver-fluke boring into a snail. Magnified 370 diameters.

The embryos which have entered the snail are, as a rule, found in the respiratory chamber, at the furthest point from the entrance, and close by the kidney. The embryos might swim in at the opening, though the snail is very sensitive to any touch in this neighbourhood; and an object so large compared with the size of the snail as the embryo is, would probably, in trying to enter, produce sufficient irritation to cause the snail to close the opening. I am inclined to think that the embryos enter by boring, and this view is supported by the occasional presence of an embryo in the body-cavity, or even in the substance of the foot. The first change the embryo undergoes after entering the snail appears to be the loss of the outer layer of flat ciliated cells, the cilia no longer being of any service. A thin cuticle is secreted by the body-wall and covers the whole of the outer surface. Embryos may sometimes be seen which have lost the ciliated cells, but still retain the conical form. This elongated conical form is, however, very soon lost, and the embryos take an elliptical shape, such as is shown in Fig. 3, p. 188. The eye-spots of the embryo become detached from one another, and lose their crescentic form; but they, as well as the head-papilla, persist, showing the identity of this young sporocyst—for such it is—with the embryo of the liver-fluke. After the change of form has taken place the length is only about ·07 mm. Growth is very rapid, so that by the end of the third day the sporocyst has increased to ·15 mm. in length, still preserving the elliptical form. After this time growth is most rapid in the longitudinal direction, and the form

becomes sack-shaped. At the end of a week the length is about ·22 mm. The rudimentary digestive tract remains for a time, but later on is no longer distinguishable. The germinal cells filling the sporocyst are now much more

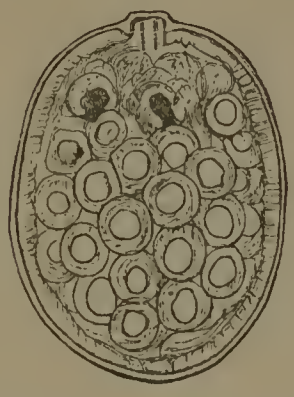

Fig. 3.—Embryo of liver-fluke soon after it has settled in the snail Magnified 370 diameters.

numerous, partly perhaps owing to the division of those already present in the embryo, but more especially owing to a proliferation of the cells of the inner wall of the sporocyst. If the sporocyst be much contracted, the germinal cells seem to fill up the whole of the space, and the cells which are still attached to the body-wall, and form part of its inner surface, cannot be distinguished from those which are lying free. But if a sporocyst be chosen for examination which is not in a state of contraction, cells with large nuclei may be seen in the clearest possible manner projecting here and there from the inner surface; sometimes in a single layer, at other times in rounded heaps, two or three cells deep. At about the beginning of the second week the mass of germinal cells is first seen to be breaking up into separate balls of cells—the germs of the next generation. The sporocyst continues to increase in size, the papilla is still seen at one end, and the two eye-spots behind, these often getting widely separated. Instead of the two ciliated funnels of the excretory system of the embryo, we may now distinguish as many as ten in the sporocyst, all being situated about the middle of the body. In each funnel may be seen a single large tongue-shaped cilium, carried by a nucleated cell. The vessels into which these funnels might be supposed to lead cannot be clearly seen. As the germs within the sporocyst increase in size they assume an oval and then a more oblong form. All the germs within a given sporocyst are not at the same stage of development. There is generally a single large one, with two or three of medium size, and several small ones. By the eleventh day we see that the germs are not destined to form a brood of cercariæ, that is, of those forms which enter

into the sheep, but that they will form a second generation, reproducing asexually by the formation of spores within the body-cavity. In the most advanced germs which have the oblong form, we may now distinguish cells arranged to form a nearly spherical pharynx, which leads into a short intestine, whilst towards the opposite end two short blunt processes grow out at the sides (Fig. 4). The sporocysts have now reached almost their full size, and they measure ·6 mm. in length. They are often of very irregular form, owing to the protuberance of the thin body-wall, caused by the developing germs.

By the end of the thirteenth day the rediæ are ready to issue from the sporocyst; they have now a more elongated form, and may measure as much as ·27 mm. in length, by ·11 in breadth. The surface of the body is covered with a delicate structureless cuticle, and a little way behind the pharynx the surface is raised up into a ring encircling the body, whilst near the opposite end are the two short stumpy processes. These are not on directly opposite sides of the body, but are nearer together, inclined nearly at right angles to one another. Beneath the cuticle is a granular layer forming the body-wall, in which flattened polygonal cells can be made out; and beneath these, strongly developed muscle fibres arranged in two layers, the outer layer of transverse being much stronger than the inner layer of longitudinal fibres. The pharynx is distinct, and the digestive tract is a simple sac, the blind end of which reaches a little way past the middle of the body. The whole of the space between the digestive tract and the body-wall is occupied by round nucleated germinal cells. The young redia shows active movements, and at length breaks its way through the wall of the sporocyst. The wound produced by its forcible exit closes up at once, and the germs still remaining continue to develop. The liberated rediæ begin to feed on the tissues of their host, and some of them at least migrate into the other organs of the snail. I have found them in the liver with their digestive tract containing the yellow remains of liver-cells. In fact, the injury they do to the snails in forcing their way through the tissues gives rise to a serious mortality among the molluscs, so that only a few of my snails have survived three weeks after infection.

By the 23rd day the rediæ have reached the length of ·6 or ·7 mm. (see Fig. 5); and the germinal cells, increased in number by a proliferation of cells from the lining membrane of the body-cavity, similar to that described in the sporocyst, have begun to separate into spherical germs. In

some of these germs I observed evidence of the formation of a gastrula. The rediæ are very active; and when the

Fig. 4. Fig. 5.

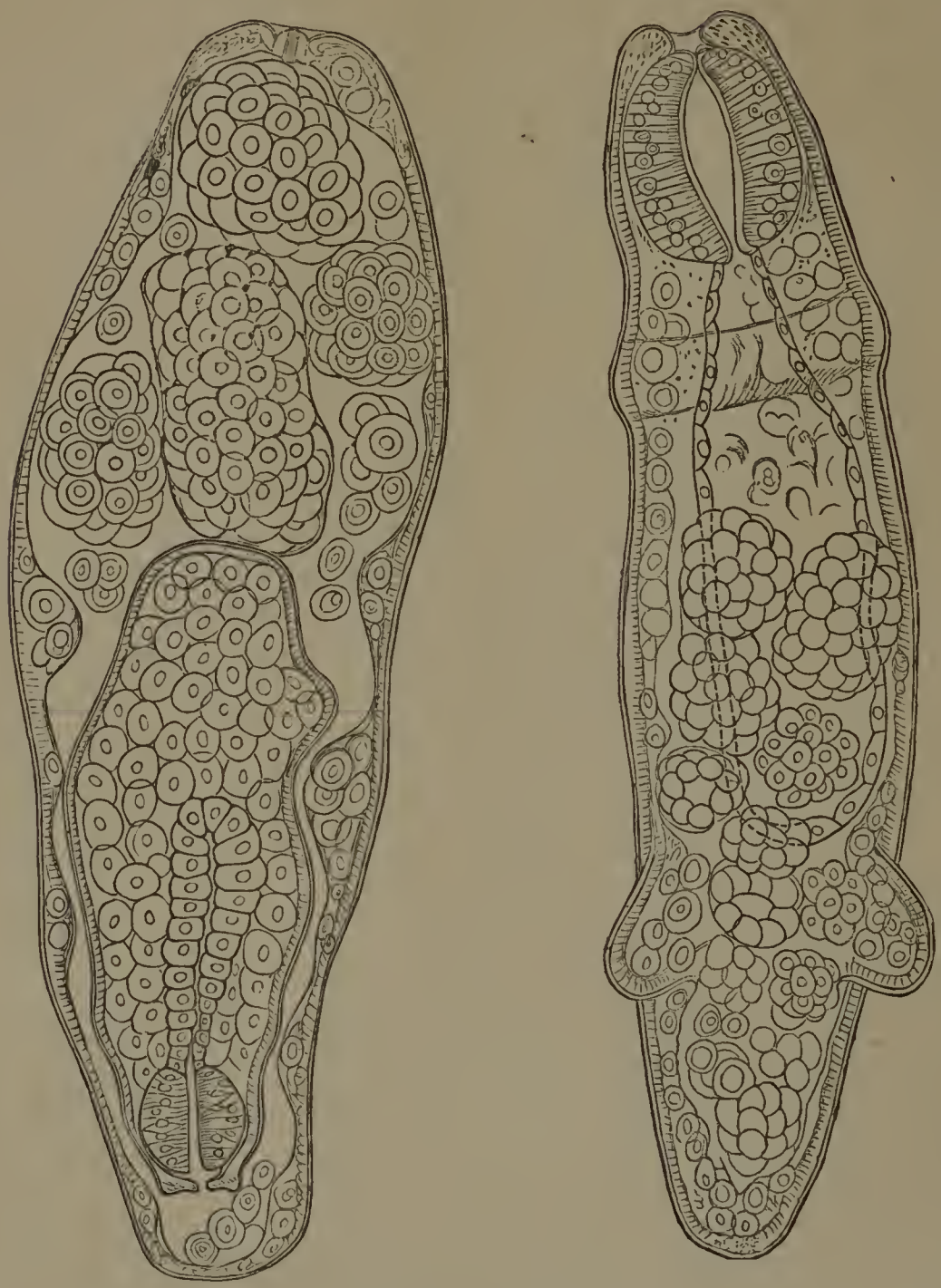

Fig. 4.—Adult sporocyst of liver-fluke, containing several germs in different stages of development. The largest has assumed the character of a redia. Magnified 230 diameters.

Fig. 5.—A free redia (second generation) of the liver-fluke with the contents forming into germs of the third generation. Magnified 230 diameters.

snail is examined they soon contract the body-walls; but if observed at once, bridges or bridles of tissue composed of cells with their processes may be seen to cross the body-cavity in various directions. These I believe to be contractile. A little in front of the lateral processes of the rediæ

may be seen ciliated funnels arranged in groups, and of the same nature as those in the sporocyst.

The spherical germs increase in size, and assume an oval or almost oblong shape, but I have not, at the time of writing, been able to trace their development. They may prove to be another generation of rediæ, or the cercariæ which finally enter the sheep. I have still two snails alive which have been infected for nearly five weeks, and I hope on dissecting them to complete the cycle of forms belonging to the liver-fluke.

Two points which I was enabled to make out during these experiments have a bearing upon the development of other species of trematodes besides the liver-fluke. In the first place I found that the snails swallowed the eggs of the fluke contained in the aquaria in large numbers. I had already observed that various species of slugs devoured eggs* strewn on their food without injuring them. But in the case of these water-snails, the large numbers picked up from the bottom of the aquarium showed that the snails do not swallow the eggs accidentally, but intentionally, no doubt mistaking them for food. The eggs and the contained embryos are uninjured by their passage through the digestive tract, and may be swallowed over and over again. Such being the case, eggs will undoubtedly be often hatched during their passage along the digestive tract; and if the embryos are not killed by the action of the digestive juices, they have only to pass through the walls of the intestine or up the bile-ducts into the liver (an organ very frequently infested with sporocysts or rediæ) to find themselves, if in a suitable mollusc, in a favourable place for further development.

That the embryos hatched out in the intestine may escape injury from the digestive juices of the snail, I have been able to observe directly in the case of the embryo of the liver-fluke. An embryo of this species was seen escaping from an egg in the intestine of a small *Limnæus pereger*, and during the three hours it was under observation it remained alive and active, although bathed in the fluid contents of the intestine. In this case, the embryo was prevented, partly by the pressure of the cover-glass, and partly by the presence of other eggs, portions of undigested food, &c., from escaping from the intestine. But in another example of the same species of snail, an active embryo was found free in the body-cavity, and as the digestive canal had not been ruptured, it must have bored its way through the walls of the intestine, which contained very numerous eggs.

(*To be continued.*)

* 'Journal of the Royal Agricultural Society,' vol. xvii, p. 14.

## THE ETIOLOGY OF CROUPOUS PNEUMONIA.

Griffini and Cambria have been working at the question of the etiology of croupous pneumonia, and an abstract of the results of their investigations is given in the *Centrablatt für Klinische Medizin*, No. 25. There is, they conclude, a bacillus in the blood and sputa of pneumonic patients, which is not the same as Kleb's *monadin*. When the pneumonic sputum, free from saliva, was subcutaneously injected, or placed in contact with the trachea of rabbits and dogs, a fatal form of septicæmia was induced, and the blood of these dead animals when inoculated into others led to a lethal result. The authors maintain that this is not a specific effect of pneumonic sputa, for some old experiments by Senator have shown that the inoculation of fresh bronchial mucus under the skin of a dog was followed by a deadly result. The saliva of pneumonic patients kills rabbits rapidly, but only gives rise to an abscess at the site of injection in dogs. Defibrinated blood from cases of pneumonia, thrown into the cavity of the peritoneum or of the trachea of rabbits and dogs, resulted not in pneumonia, but in various degrees of fever. Inoculation of the bacilli in various stages of artificial cultivation never caused any changes in organs, but only alterations in temperature. The bacillus of the pneumonic blood and sputa was always afterwards found in the blood of the vaccinated animals, although it had excited no pneumonia; hence, the authors believe that the bacillus found in the patients suffering from pneumonia was an epiphenomenon, and not a necessary factor in the production of pneumonia. When small doses of ammonia were syringed into the trachea of animals, lobar pneumonia was invariably produced if the animals survived a few days. The authors come to the conclusion that pneumonia is not an infectious disease.—*Med. Times and Gazette.*

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## DR. FORMAD ON THE PATHOLOGY OF TUBERCLE.

Dr. Formad, the Lecturer on Experimental Pathology and Demonstrator of Morbid Anatomy in the University of Pennsylvania, read the first of a series of papers before the Philadelphia Medical Society, bearing this title: "The Bacillus Tuberculosis and some Anatomical Points which suggest the Refutation of its Etiological Relation with Tuberculosis." In this he stated his intention of demonstra-

ing Koch's bacillus, and at the same time to bring forward some points from researches of his own, which should check the acceptance of the doctrine of the parasitic origin of tuberculosis. The whole paper is published at length in the *Philadelphia Medical Times* for November 18th. It is far too long for us to deal with, except by transcribing the propositions it is intended to illustrate. Its character may be judged of by an editorial note which accompanies it from the pen of Prof. Horatio Wood. "We make no apology," he says, "for occupying so much space in to-day's issue with the paper of Dr. Formad, to the exclusion of other matter; but desire to direct attention to it as the result of very much labour, and as affording the most plausible explanation of tuberculosis recently offered. The parasitic theory of Koch does not accord with the well-known clinical facts of the disease, and is therefore improbable, and, we believe, will be eventually disproved. It has been accepted with a rush, and probably will continue its meteoric flight until it passes out of sight. The paper and specimens of Dr. Formad have been referred to a carefully selected committee by the County Medical Society, which committee owes to its Society, to itself, and to the subject, a very careful consideration of the matter. If Dr. Formad's statements and observations are correct his theory is fairly proved; if they be confirmed foreign pathologists will have to look well to their laurels, lest they be transferred to the New World."

The following are Dr. Formad's propositions:

"My researches clearly show the following points:—1. The predisposition to tuberculosis in some men and animals—the so-called scrofulous habit—lies in the anatomy of the connective tissue of the individual; the peculiarity being a narrowness of the lymph spaces, and their partial obstruction by cellular elements. 2. Only beings with such anomalous structure of connective tissue can have primary tuberculosis, and such animals do invariably become tuberculous from any injury resulting in inflammation, or from repeated injuries. 3. Scrofulous beings can have no other than a tuberculous inflammation, although it may remain local and harmless. 4. Non-scrofulous men or animals may acquire the predisposition to tuberculosis through malnutrition and confinement, the latter bringing on the above-mentioned anatomical peculiarities in the connective tissue. 5. No external etiological influences are necessary to cause tuberculous disease other than those which ordinarily produce inflammation, and even scrofulous beings will not become tuberculous unless local inflammation is set up—no inflam-

mation, no tuberculosis. 6. Non-scrofulous animals, so far as can be established now, may acquire tubercular diseases through injuries of serous membranes—viz. peritoneum, pleura, &c.—and even here without any special virus whatsoever. Clinical observations on the *post-mortem* table show similar conditions, and prove the same in man. (Koch's own experiments are also in favour of this proposition, as will be shown hereafter, but he has overlooked this.) 7. The bacilli—which it is the merit of Koch to have first proved to infest tissues affected by tubercular disease—are not necessary for its causation, even if a special organism exist and be really possessed of such property. The presence of bacilli (so far as our present research goes) is secondary, and appears to *condition* the complete destruction of the tissue already diseased and infested by them, and this destruction is in direct proportion to the quantity of the organisms which thus regulate the prognosis. The tubercular tissue seems to serve merely as a nidus for the growth of the bacillus. 8. From the results of microscopic examination, from numerous observations upon the *post-mortem* table, and on clinical grounds, I have come to the conclusion that phthsis is not a specific infectious disease, but that the individuals suffering from tubercular disease are specific themselves originally, and form a special species of mankind—the scrofulous. 9. Scrofulosis is a condition which may arise from malnutrition and seclusion in any being, and thus may be produced artificially. It always depends upon the demonstrated anatomical changes in the connective tissue. 10. An analysis of Koch's experiments shows that he has not proved the parasitic nature of phthisis, or that there exists a special bacillus tuberculosis, so that the infectiousness of tubercular disease is still *sub judice*."

Dr. Formad, in the following passage, describes the differences of the results of inflammation in non-scrofulous (*e. g.* the cat) and scrofulous animals (*e. g.* the rabbit):

"When a part in a non-scrofulous normal subject or animal is the seat of acute inflammation, it is solely in the connective tissue, with its pertaining lymph spaces and blood-vessels, that the inflammatory process makes its active display. Under the microscope all the lymph spaces of the affected area are seen filled with cells; often they are enormously distended by them, so that the whole appears like a sponge soaked with a corpuscular liquid. Whether the cells invading the tissues are desquamated and proliferated endothelium of the lymph spaces, or whether they

are wandered-in corpuscles, or both, we will not discuss here. They do not stay there long, however, under ordinary circumstances; they are bound to leave the tissue they invaded (resolution), or they must die together (suppuration), forming loss of substance. In either case, particularly in resolution, it is the office of the lymph spaces to relieve a part of the exudate, and they are the means which promptly, and in due time, effect the carrying off of the mischievous and intruding cells—thus accomplishing the return of the tissue to the normal state. This will only occur, however, if, and as long as, the lymph spaces are not obstructed, and will allow the free intercommunication of serum between the blood-vessels and the lymphatics, which is so essential to the well-being of the organism.

"If, on the other hand, a part in a scrofulous subject or animal becomes the seat of inflammation, the termination will be an entirely different one. The connective tissue is here at fault. Its lymph spaces, which are narrow and obliterated, do not permit the reabsorption of the exudate, and the tissue of the affected area lingers under the voluminous pressure of the imprisoned cells, which form tubercles. There is no other issue here, and it must die—*i. e.* undergo cheesy degeneration. The cheesy mass thus formed may become encapsuled by inflammatory overgrowth of connective tissue, and frequently this is the case. I have often seen in rabbits that the development of tuberculous disease is stopped in this way for some time. Ultimately, however, the animal will succumb to tuberculosis, when the inflammatory process is renewed, and extends in the manner to be described later.

"The above statements are based upon direct observation from experiments many times repeated. It is distinctly seen that one and the same process, induced in both cases similarly, terminates so differently in the cat and the rabbit. The experiments were made exactly under the same conditions, and the animals being of the same age, and equally in good health, it proves clearly that the inflammation is not specific, but that the animal is specific, and that this lies in the above-mentioned peculiar anatomy of the connective tissue of the animal in question."

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## MORE ABOUT THE BACILLUS OF TUBERCLE.

We learn from the *Wiener Med. Woch.*, No. 51, that Prof. Balogh, speaking recently before the Royal Medical

Society of Buda-Pesth, stated that he had detected, in the marshes surrounding Buda-Pesth, a bacterium which behaves very like the bacillus of tubercle, but which he appears not to regard as such. He contends that neither the form nor the staining with dyes is sufficient to distinguish the varieties of Schizomycetes (fission-fungi). Experiments were conducted in which animals were allowed to inhale the fission-fungi of the marsh, with the result that, on *post-mortem* examination, little nodular growths were found in the lungs, heart, and kidneys; in the nodules the fungi were found in various stages of development, and the rod shapes stained with methylin-blue and vesuvin, just as do the bacilli of tubercle. Inoculation with bacteria from scarlatinal urine, and from ordinary sputa of bronchitis, gave rise to similar nodular growths which were not considered to be "tubercle." Prof. Koryanyi mentioned a case of a phthisical patient suffering from syphilitic lupus, which had improved under the use of iodide of potassium. In the sputa of this case, which was regarded as one of pulmonary syphilis, the bacillus of Koch was detected; hence Koryanyi holds that the presence of this bacillus is not a sure sign of "tuberculosis." We know of no more difficult questions than those raised by such observations. They seem always capable of more than one interpretation. It is possible that the bacillus found in the fens is identical with that supposed to be the cause of tuberculosis. Again, the notion that morphological appearances are not enough to split the group of the fission fungi into varieties, has been upheld by eminent botanists. The remarks above reported raise again also the difficult question as to what is to be called tubercle. We may repeat here what we have elsewhere said, that various causes may give rise to products which to our senses are similar and indistinguishable.—*Med. Times and Gaz.*

## THE BACILLUS OF GLANDERS.

In the *Wiener Med. Woch.*, No. 1, 1883, there is an abstract of some observations on the pathology of glanders, which have led to the discovery of the bacterium of this disease. The investigation, undertaken by what corresponds to our Local Government Board, consisted in experimental and microscopical research. In sections of the diseased tissues (lungs, spleen, liver, and nose of a horse), stained with a concentrated watery solution of methylen blue, cleared up with a dilute solution of acetic acid, and finally washed in

alcohol, fine rods were to be seen here and there, which were about the same size as those of the *Bacillus tuberculosis*. Other forms of bacteria were not present in the specific products of glanders. In order to ascertain whether these bacteria were causally related to the disease in question, cultivation experiments were undertaken. To this end a series of perfectly clean glasses, containing sterilised blood-serum from the horse or sheep, were inoculated with some of the material of the specific products of glanders taken from the lungs and spleen of a horse. On the third day after the inoculation of the sterilised fluids, numerous small brilliant globules were found in the majority of the glasses, scattered about on the surface of the serum. The globules, on investigation after staining on cover-slips, turned out to be countless bacilli of the same sort as those detected in the tissues above mentioned. The bacilli, the result of artificial cultivation, were inoculated on rabbits, mice, and guinea-pigs. In some rabbits merely local manifestations, with swelling of the lymphatic glands were observed; in others all the features of typical glanders appeared. White mice were unaffected by the experimental vaccination; but small grey yellow nodules were discovered in the liver and spleen of field mice eight days after inoculation. Three or four days after the vaccination of guinea-pigs, an ulcer, with an indurated base, invariably appeared at the site inoculated, and later on the corresponding lymphatic glands became enlarged. In many guinea-pigs the infection stopped at this point, but in some (when the amount of stuff injected was greater) an acute nodular swelling of the testes or ovaries or vulva set in, and signs of a spread of the disease to the skin and nasal mucous membrane were observed later still. In some, again, instead of this chronic course, an acute wide-spread infection suddenly set in, and caused rapid death. In such cases innumerable submiliary nodules were found disseminated throughout the spleen and lungs, and resembled the products of acute tuberculosis, but the bacilli contained in these miliary nodules did not behave like the bacilli of tubercle. Cultivations and inoculations from the organs of a guinea-pig dead of the rapid form of the disease gave similar results to those obtained from the organs of the horse. Two horses inoculated with some material from the pure cultivations of the baccilli died with the symptoms and showed the post-mortem appearances of glanders. Dr. Struck, the head of the Medical Department of the Local Government Board in Berlin, has thus presented us with a complete series of positive experiments, all tending

to support the notion that the bacilli are really causally connected with the disease called glanders. This demonstration can only be held to be second in point of completeness to those made on *Bacillus anthracis*.—*Med. Times and Gaz.*

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## THE SO-CALLED SCARLATINA OF PIGS.

MM. Pasteur and Thuillier have published in the *Comptes-Rendus de l'Académie des Sciences* the results of their researches into the nature of the disease known here as the "scarlatina of pigs," and as *rouget* or *mal rouge* in France, where last year it caused, in the valley of the Rhône alone, the loss of over 20,000 pigs. They find a microbe, so small as easily to escape observation, of a figure-of-eight form, like that of the so-called fowl-cholera, but specifically different, for it is without action on fowls, though fatal to rabbits and sheep. It is easily cultivated out of the body; and inoculation with it, even in almost inappreciable quantities, is constantly followed by the development of the disease identical with that which appears spontaneously. This is the only satisfactory test of an alleged disease-germ. It is well-known, and has been proved experimentally, that one attack of *rouget* confers immunity in future, and MM. Pasteur and Thuillier have already succeeded in conferring an immunity as complete by the inoculation of a very mitigated form of the disease. Further experiments in this direction are in progress. They consider that Dr. Klein, who in his work on the "pneumo-enteritis" of the pig, published in 1878, described as the bacillus of "porcine scarlatina" one with spores even more voluminous than that of anthrax, was completely in error—that disease, whatever it was, and its bacilli having nothing in common with the malady now under consideration.—*Med. Times and Gazette.*

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## TRICHINOSIS IN PRUSSIA.

We mentioned some time ago in a notice of the Report on Trichinæ and Trichinosis by the U. S. Marine Hospital Service, that the parasite was by no means confined to America, but had been found in every country where it had been sought for; and that, even as regards England, the only recorded fatal cases had been caused by the consumption in an insufficiently cooked state of home-fed pork. We have before us the annual report of the examination of swine for

trichinæ in the kingdom of Prussia in the year 1881, and from this we learn that one animal in 1339 was found to be infested, the proportion in 1880 having been one in 1460. In all 3,118,780 swine (home bred) were examined in 1881, and trichinæ were found in 1695. Of American hams and sides of bacon 1895 only proved to be trichinous. The distribution of the disease in Prussia is remarkably unequal, as the following table will show. The proportion of infected animals in the province of

| | | | |
|---|---|---|---|
| Posen | was one in | 221 | examined. |
| Dantzic | ,, | 377 | ,, |
| Königsberg | ,, | 494 | ,, |
| Marienwerder | ,, | 689 | ,, |
| Berlin | ,, | 1414 | ,, |
| Stettin | ,, | 2030 | ,, |
| Minden | ,, | 10,699 | ,, |
| Coblenz | ,, | 19,260 | ,, |
| Hanover | ,, | 20,892 | ,, |
| Cologne | ,, | 28,300 | ,, |

Altogether, 1695 native animals were found trichinous, and 1895 hams or pieces of American bacon, but those which produced the disease in man were invariably of home growth, probably because cured in a less effectual manner. The examinations are made by 18,581 inspectors, who frequently pay for their negligence or incapacity by fine or imprisonment when ill effects follow the consumption of meat which they have passed.

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## STATISTICS OF HYDATID DISEASE.

*Concluded from p.* 117.

*New Zealand.*—Population on December 31st, 1880, 484,864 souls; mean death-rate from 1869 to 1879, 12·17 per 1000. The Acting Colonial Secretary, in a letter dated March 7th, 1878, states that the causes of death were not compiled by the Registrar-General's Department prior to the year 1873. A statistical return that should have accompanied this letter has not reached my hands, so that the only returns in my possession are those for the four years, 1878, 1879, 1880, and 1881, and they show that in the year 1878 the deaths from hydatids were 6 = 1·29 per 1000; in 1879, 7 = 1·25; in 1880, 9 = 1·65; in 1881, 3 = 0·55; total, 25. So that 1·185 per 1000 of the deaths that took place in these four years resulted from hydatid disease. In hospital returns of New Zealand replies were received from Auckland,

Charleston, Christchurch, Dunedin, Gisborne, Hokitika, Lawrence, Napier, Naseby, Nelson, New Plymouth, Oamaru, Picton, Reefton, Southland, Thames, Timaru, Wakatipa, Wellington, and Westport. In eleven of these no hydatids had been treated, viz. Charleston, Gisborne, Lawrence, Napier, Naseby, Oamaru, Picton, Reefton, Southland, Thames, and Timaru. In the nine remaining hospitals there had been in all 57 cases of hydatids under treatment, and the proportion of cases of this disease to the total in-patients, as far I could ascertain, was about one out of every 746 (exactly 745·7). I think that this estimate is rather too high, but it is based upon the statistics at my disposal From both the Registrar-General's and the hospital returns it will be seen that hydatid disease is not very prevalent in New Zealand.

*New South Wales.*—According to Hayter's Yearbook the population of this province on December 31st, 1880, was 739,385 persons. No separate classification of hydatids disease was made by the Registrar-General's Department prior to the year 1875. Since that date, however, I have, through the favour of the Government, been supplied with the annual returns of deaths due to this cause. I need not now enter into details, but merely give you the gross result for the seven years 1875 to 1882. During this period 56 persons died from hydatids, viz. 29 males and 27 females. During the same period 75,563 persons died in this province, so that one death out of every 1349·3 was caused by hydatid disease, being at the rate of 0·741 per 1000.

From the hospital returns there appear to have been 103 cases of hydatids in all. From these we have to omit nine cases, as there are no corresponding returns of in-door patients. This will leave 94 cases out of a total of 35,760 in-door patients, being at the rate of one out of every 380 cases.

*Summary.*—From the returns of the departments of the various Registrars-General we find that there died of hydatid disease—In England and Wales 1 out of about 12,000; in Tasmania, 0·871 per 1000; in New Zealand (1878-80), 1·185 per 1000; in New South Wales (1875 to 1882), 0·741 per 1000; in South Australia, 94 (nearly) per 1000; in Victoria (1868 to 1880), 2·98 per 1000.

The following shows the proportions of the hospital in-patients suffering from hydatids:—From English hospitals, about 1 out of 900; Victorian, about 1 out of 175; New South Wales, about 1 out of 380; South Australian, about 1 out of 245; Queensland, returns inadequate; New Zealand, about 1 out of 746; Tasmanian, about 1 out of 325.

*Table showing the number of Domestic Herbivora (including Sheep and Horned Cattle) per 100 inhabitants in the following countries:*

| *Countries. | Per 100 Inhabitants. | | |
|---|---|---|---|
| | Sheep. | Horned Cattle. | Domestic Herbivora. |
| Great Britain . . . | 93 | 29 | 122 |
| France . . . . | 64 | 30 | 94 |
| Germany . . . . | 55 | 35 | 90 |
| Ireland . . . . | 488 | 36 | 524 |
| Europe . . . . | 66 | 30 | 96 |
| Victoria . . . . | 1204 | 149 | 1353 |
| New South Wales . . | 4381 | 348 | 4729 |
| Queensland . . . . | 3067 | 1398 | 4465 |
| South Australia . . . | 2415 | 114 | 2529 |
| New Zealand . . . | 2695 | 119 | 2814 |
| Tasmania . . . . | 1554 | 110 | 1664 |

*Table showing proportion of Dogs in Victoria to Population:*

| Year. | Population according to Hayter. | Number of Dogs. | Proportion of Dogs to Population. |
|---|---|---|---|
| 1872 . . . | — | 32,504 | — |
| 1873 . . . | 772,039 | 33,284 | 1 to every 23 |
| 1874 . . . | 783,274 | 34,191 | 1 „ 23 |
| 1875 . . . | 791,399 | 36,917 | 1 „ 21 |
| 1876 . . . | 801,717 | 36,532 | 1 „ 22 |
| 1877 . . . | 815,494 | 37,097 | 1 „ 22 |
| 1878 . . . | 827,439 | 37,251 | 1 „ 22 |
| 1879 . . . | 840,620 | 37,248 | 1 „ 22½ |
| 1880 . . . | 860,067 | 37,495 | 1 „ 23 |

* The numbers for Great Britain, France, Germany, and Europe as a whole, are from 'The Balance-sheet of the World,' 1870-80, by Michael G. Mulhall, F.S.S., London, Edward Stanford, 1881, table 27, p. 40; those from Iceland are from Krabbe, 'Recherches Helminthologiques en Danemark et en Islande,' p. 59; those for the colonies of Australasia are from Hayter, 'Victorian Year-book,' 1880-81, folding-sheet No. 3. When we come to consider the number of domestic herbivora in each colony we find that in Victoria, where, according to our statistics, hydatid disease in man is most prevalent, the number of domestic herbivora per 100 inhabitants is the lowest; so that it is quite plain that other important elements must be operative to cause hydatids in man. And this bears out my assertion that domestic herbivora do not directly infect man with echinococcus disease, but merely suffer in common with man.

In conclusion, the doctor said if any one district of Australasia or any country in the world except Iceland, the south-east district of this colony could be pointed to as the worst in the matter of hydatid disease. In one district in Iceland every sheep from three years of age might be said to be infected with hydatids; and in the south-east of this colony in certain districts he had been informed that almost every sheep was attacked. There was a great difference, geologically and in other ways, between the south-east portion of this colony and Iceland, but in one common characteristic there was a resemblance, viz. in the swampy nature of the land. In the south-east there were marshy tracts, where water lay, and where foreign substances obtained a lodgment, causing decay and creating conditions favorable to hydatids. Sheep and cattle drank the infected water, absorbed the germs of the hydatids, and assisted to extend the disease. The ova were of such a size that they could not readily pass through a filter; therefore he strongly recommended the people of the south-east not to drink water unless it were previously filtered or boiled. If those simple precautions were generally adopted very little would be heard of hydatid disease. It would be a most valuable investigation if members of the Society would do their utmost to acquire information, first as to the actual prevalence of hydatid disease in the south-east, and also as to the extent to which dogs were attacked with *Tænia echinococcus;* also a microscopic examination of the water would furnish most valuable information. It was not at all difficult to identify the ova. Since the last meeting he had examined several more dogs killed by the police, and out of twenty the number of eight had *Tænia echinococcus*—in some more than a hundred, in others but a few, and in one only four. A ninth dog contained one or two small items of matter which he believed to be terminal sections of *Tænia echinococcus*. Thirty-two per cent. of the stray dogs of Adelaide swarmed with the coccus. It was far more significant that eight should be found infected than that twelve should be free, because the pest was so small that he might have overlooked some. The dogs probably got the germs from sheep or other domestic herbivorous animals, and it was thus disseminated. The dogs that did not show any traces may have been, and probably were, examples in which the creature had served its term and died out, so that a very much larger proportion of dogs in the city probably had the disease. The practical point to be arrived at was that the source of great danger was the vicious system of private abattoirs in the city. There was scarcely one in ten of the city abattoirs

that was not open to dogs. The butcher in killing a sheep, for instance, found the pluck diseased, threw it away, and a dog feasting upon it absorbed the disease. He felt convinced that his estimate was not excessive. Every member of the Society should say that the private abattoirs must be abolished, or be put under the most severe supervision. Practically, slaughtering should be done only in the public abattoirs under most careful inspection. The reason the Adelaide people did not suffer so much as the Icelanders might be attributed to the fact that they were cleanly and decent, and their sanitary arrangements were better, but much more needed to be done to make them quite exempt from danger. He had convinced himself that the ova was practically transferred from dogs or other animals to human beings by means of the water they drank. He met an instance of hydatids infecting a child of not more than two years of age; and as it took months for the hydatid to develop, the child must have been infected when very young indeed. He made inquiries, and found that the child had been in the habit of playing with a very disreputable-looking bull-dog about the premises, and the infant's mother admitted that she had frequently been obliged to interfere because the child used to take up and put to her mouth the bones the dog had been gnawing. The real curse to this country was not merely the impure water, but the number of stray badly tended dogs, and these should be thinned out.

The paper read by Dr. Thomas was listened to with very great attention, and the Chief Justice proposed a vote of thanks to him for the valuable information he had given. As the hour was late, discussion was adjourned till next meeting.—*South Australian Register*, Nov. 9, 1882.

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## ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

Monthly Council, February 7th, 1883. Present, the Duke of Richmond and Gordon, K.G., President, in the chair.

### Veterinary Committee.

The *Hon. W. Egerton*, M.P., reported that he had been elected chairman for the year. The Committee had received the following report of the examiners appointed by the Royal College of Veterinary Surgeons to award the Society's veterinary prizes and medals:

Gentlemen,—We, the examiners appointed by the Council of the Royal College of Veterinary Surgeons to examine the candidates for the veterinary prizes so liberally offered by the Royal

Agricultural Society, have the honour to report that three candidates came forward, and they so far acquitted themselves to the satisfaction of the examiners that they were considered eligible to enter upon the written or final portion of the examination. We award out of a possible 1500 marks, to—

| | |
|---|---|
| Mr. W. A. Edgar, Dartford . . . . | 1145 |
| Mr. A. H. Archer, Dunstable . . . . | 885 |
| Mr. J. B. Gresswell, Louth . . . . | 820 |

We therefore recommend that the first prize be given to Mr. Edgar; second, to Mr. Archer; third, to Mr. Gresswell.

Although these candidates have obtained the above number of marks, we were sorry to find, in the oral examination, that their knowledge of the subject of grasses, and their influence in the production of disease—which we thought it desirable to test—was of a more limited character than we had expected.—We have the honour to be, Gentlemen, your obedient servants,

(Signed) { William Duguid, Thomas Walton Mayer, Wm. Alston Edgar.

In consequence of the paucity of candidates, and the small interest apparently felt by the veterinary profession in the examination for prizes offered by the Society for the encouragement of the study of cattle pathology, the Committee regretted to have to recommend the withdrawal of the offer of these prizes in future; but they recommend that the silver and bronze medals of the Society be offered to the two students who may pass the best examination in the pathology of cattle, sheep, and pigs at the Diploma Examination of the Royal College of Veterinary Surgeons. A letter had been received from Mr. W. A. Edgar, advocating the institution of experiments as to swine-fever, in continuation of Pasteur's and Klein's investigations, but the Committee did not at present intend to make further investigations.

*Mr. J. Martin* asked whether the attention of the Committee had been drawn to the disease known as "pink-eye," which he understood was raging in Yorkshire and some other parts of the country?

*Mr. Dent* said he did not think that the disease prevailed generally in Yorkshire; but in Northumberland, Durham, and the north of Yorkshire, in many colliery stables it was raging; and it had become so serious that the Contagious Diseases' Committee for the West Riding had recently called the attention of the Privy Council to it. Some people imagined it to be a disease imported from America, but he was told by the manager of the horses belonging to the North-Eastern Railway Company that it was not a new disease, but one which had been in existence for many years. Certainly in the North of England it had been very virulent, and had caused great losses. Mr. Dent added that he regretted very much the withdrawal of the prizes offered as an encouragement to veterinary students, but it

seemed perfectly absurd that the Society should annually give £50 in prizes, in addition to the expense of the examination, when there were never more than four candidates.

*Earl Cathcart* said that in the neighbourhood of Northallerton very considerable anxiety prevailed on the subject of the disease in question.

*Mr. Martin* said that personally he knew nothing whatever about the disease, but he was informed that it was a virulent form of influenza. It appeared to attack the mucous membranes of the throat, then the head swells and the eyes take a deep pink hue, and the lungs become affected.

*Mr. Dent* said that if the horses attacked by the disease were not properly treated at once, there was great danger of death ensuing.

*Professor Simonds* observed that the disease commonly designated "pink-eye" was so called because the conjunctival membrane assumed a pink hue. The term was an Americanism, and he was sorry that it had been adopted in this country. The disease was nothing more than a severe form of influenza, and the peculiarity with reference to this visitation was that it had assumed an enzootic character. There were some doubts as to whether it was a contagious disease, but perhaps it might be safely considered that under certain circumstances it spread from one animal to another. It was a disease which did not affect cattle or sheep, but only horses. Horses were of course rendered very susceptible to the disease when they were placed in unhealthy situations, such as pits; and in districts like Newcastle, there were in operation many causes of a nature calculated to produce the disease. In cases of this affection farmers should take good care that no depletive remedies were used. The animals should be treated—if he might use the simile—rather by the cook than the doctor, and the medicinal remedies administered should be of an invigorating character. If care were taken to keep the animals in healthy situations, diffusible stimulants exhibited, and depletive remedies not used, we should hear very little of the fatality of the disease.

The report of the Committee was then adopted.

### The Exhibition of Over-Fed Animals.

The *Hon. W. Egerton*, pursuant to notice, called attention to the reply of the Secretary to Mr. Rigby's letter of December 2nd, on the subject of the exhibition of fat animals in agricultural show-yards (in a condition that unfits them for breeding purposes). Mr. Egerton said he must apologise to the Council for not having been present at the December meeting, when Mr. Rigby's letter was considered, but he thought the subject so important that he wished for a more definite expression of opinion. In their reply, the Council said that the rules of adjudication provided a remedy for the evil complained of. He ventured to think that that was not an answer to the point raised by Mr. Rigby and himself, because the rule of adjudica-

tion only said that the judges are "not to take into their consideration the present value to the butcher of animals exhibited but to decide according to their relative merits for the purpose of breeding." Still, the animal might be in such a state as to be prejudiced for breeding purposes, but they were not prevented in any way from giving the prize to it because they were only to consider its merits "at the present time," independent of its value to the butcher. At the Birmingham Show the judges were distinctly requested not to award prizes to over-fed animals. The rule of the Royal Agricultural Society was very well so far as it went, but there was a loophole of escape, and as a general rule animals were shown in an overfed state, and the rule did not carry out the object in view. The prize list for York had been already settled, but he did not know whether he was too late to make any alteration in the rules of adjudication. However, if a discussion took place, and the judges received instructions that prizes were not to be awarded to overfed animals, then his object would be gained; and it was that point which he wished to bring before the Council, whether it was to be distinctly understood that the judges were not to award prizes to overfed animals. He had very good authority for stating that the present state of our shows was prejudicial rather than useful to the breeding of good animals. In a late article in the *Journal* of the Society, Mr. John Thornton said:—"The forced and obese state in which prize animals are seen at our own Agricultural Societies, from the Royal downwards, distinctly tends, except in very few instances, to the deterioration and not to the improvement of our British breeds." Well, that was a very strong statement to make, and so far as he (Mr. Egerton) had seen, he believed that the majority of agriculturists considered that the animals were shown in too obese a state. He should be satisfied if by raising a discussion he received a more distinct expression of opinion upon the subject. It was very important that the "Royal" should take the lead in a matter of that kind. Of course he might be told that it was very desirable to see to what extent an animal could be fatted; but he would point out that there are too many animals with a tendency to fat rather than to milking qualities. In Carr's book called the 'Warlaby and Killerby Herds,' p. 13, he found the following:—"Anna by Pilot, who won numerous prizes at the best shows of the day, and who in 1824 performed the feat of walking from Studley to Manchester, taking first prize there and walking back, and produced within a fortnight Young Anna." Of course, in those days the absence of railways necessitated the animals being in a healthier condition than at the present time. He thought it was highly important that the Society should give every encouragement to breeding animals being shown without an excess of fat.

The *President* inquired how it was intended to define an "overfed animal?"

*Colonel Kingscote* said it would be interesting to have a return showing the number of times this question had been brought forward. He remembered that it was raised years ago by the late Earl Ducie, and since then it had frequently come up for discussion. He did not at all agree with Mr. Egerton and his friends in Cheshire. What more could be done than was done by the Society? In the case of heifers, they must, before receiving the prize, produce a live calf within a stipulated time, or if dead, the calf must be born at the proper time. What did Mr. Egerton propose as a remedy, if the state of things was so bad as he represented?

*Sir Brandreth Gibbs* reminded the Council of the action taken at the time to which Colonel Kingscote referred, viz. when the late Earl Ducie was president, the whole of the judges were formed into a special committee to go round the show-yard, and the result of their examination was that only one animal was disqualified.

*Mr. Wakefield* referred to his experience at a show at Preston, where a gentleman was appointed to go round the yard with a view to disqualify over-fed animals, but the conclusion he came to was that they were such "a grand lot "that he was indisposed to disqualify a single one.

*Mr. Chandos-Pole-Gell* expressed his conviction that it would be impossible to satisfactorily define what was meant by an "overfed" animal. The object of the Society being to encourage early maturity, it would be acting contrary to its own objects if the animals sent into the showyard in a fat condition, and which otherwise complied with the rules of the Society, were disqualified on account of their flesh, because it was a notorious fact that all animals sent for exhibition into the Society's showyard were fed to the utmost for that purpose.

The *Earl of Feversham* said that his experience showed that the state in which animals are at present shown very much injures their breeding qualities. He quite agreed with Mr. Egerton, and he thought it would be a very good plan if the judges were instructed to withhold prizes from overfed animals.

The subject then dropped.

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## CENTRAL VETERINARY MEDICAL SOCIETY.

A MEETING of this Society was held on the 18th of January, at 10, Red Lion Square, the President, Mr. J. Woodger, in the chair. The following Fellows were also present:—Messrs. H. K. Shaw, F. W. Wragg, J. Mosedale, C. Sheather, A. Broad, T. Burrell, G. R. Dudgeon, H. J. Hancock, J. Rowe, A. Charles, T. Chesterman, F. G. Samson, G. Gray, W. Hunting, A. B. Daniel, E. M. Davy, and H. W. Caton.

*Mr. Gray* exhibited a portion of a horse's penis about six

inches in length which he had amputated. The horse had suffered an injury about three months previously from getting fixed over the chains, and had lost the power of retracting the penis, the extremity of which had become much swollen. The part of the operation which alone needed much care was the securing the arteries by ligature. The patient appeared fit to work in a fortnight, but two days after that time tetanus set in, and a most severe attack of the malady was experienced; recovery occurred, however, in about five weeks, except that a little stiffness still remained in the hind quarters.

*Mr. Daniel* said he assisted in the operation, and suggested that, in order to obviate the trouble so frequently arising in these cases from retraction of the extremity of the urethra during cicatrisation, about three inches of the muscular portion should be left in advance of the division. The only arteries he found it necessary to ligature were the superior, and two lateral. The attack of tetanus was, he said, a very acute one, as severe as he had ever witnessed. By the aid of seven or eight men nitrate of amyl was administered one night when the paroxysms were most severe; and was subsequently continued at these times, the relief from spasm and pain being most distinct.

*Mr. Sheather* had on two occasions amputated portions of the penis, and had found no difficulty arise from retention of urine through this contraction of the urethral orifice. He adopted the plan of slitting the exposed end of the urethra for an inch or so, and applying an irritant dressing, as turpentine and oil, to retard the adhesive healing action. With regard to nitrate of amyl he had used it in one case of tetanus and found it procured sufficient relief from spasm to allow of the patient feeding, though in about an hour and a half the muscular rigidity returned; but after repeated administration of the drug the horse recovered.

*Mr. Woodger* referred to two cases in which his father had operated upon the penis for diseased growths, in both constriction of the divided end of the urethra occurred, occasioning retention of urine, but only after long intervals, in one case fifteen months after the operation, in the other eighteen months. The actual cautery was employed to arrest the hæmorrhage.

*Mr. Broad* brought before the meeting the heart of a bay vanhorse: it showed much disease of the mitral valves, and a rupture of the right auricular wall; the mitral valves were much thickened, had quite lost, in fact, their membranous character, and a cloudy, inflammatory condition of the endocardium was seen extending into the left auricle; here was a pale, fibrinous clot entangled in the muscular bands. The endocardium of the left ventricle was discoloured in patches. The heart was quite empty, the pericardial cavity being found full of clotted blood. The weight of the organ when freed from pericardium, and all adjacent lung substance, was seventeen pounds and a quarter. The pulmonary arteries were free from clots. The first attack of endocarditis came on on the 2nd of October, the horse being

seized with pain while at work. He was brought home in a state of great distress. After three weeks' rest and treatment he again went to work for about twenty days when a similar seizure was experienced, the animal suddenly stopped and could not be induced to move, he laboured in breathing, and bled from the nostrils. The prominent symptoms for the first three days were an extremely rapid pulse, 120 to 100 but regular, hurried breathing, and occasional epistaxis; the quick respiration soon disappeared, but the heart was excited in action for many days. He was then kept in the stable about three weeks and was again sent out, but had not been worked much more than a fortnight when an attack of the same kind occurred, and he was brought home in a similar state of distress. He soon rallied and, as usual, fed well, and was in good spirits, the only unfavorable symptom being an irritable state of the heart, the pulse remaining at 46 or 48. He was at exercise in the street on the 13th January, when he was observed to stagger, he was at once brought in the yard, but dropped in about a minute and died immediately.

*Mr. Rowe* quoted a case of heart disease, the pulsations being most irregularly intermittent, the respirations 40 in the minute. It appeared, he thought, from cases he had observed, that epistaxis with distress was a frequent consequence of diseased heart.

*Mr. Wragg* said it was his experience that a great deal of heart disease existed, especially among heavy horses. He had seen several cases of rupture, nearly all of them occurring in the right auricle. He referred to a case under his notice a few days before, the horse died from cardiac disease, and a clot was found filling up both cavities on each side of the heart, and extending from one side some distance into the posterior aorta.

*Mr. Daniel* said he had closely examined the specimen, and had no doubt that it was an *ante mortem* rupture, and not the result of any clumsiness in extraction; the membrane of the right auricle was cloudy in appearance, and the appearance of the ruptured muscle was so characteristic.

*Mr. Gray* said he had met with several cases of heart affections, and thought it was more common than generally supposed. About a week ago he was called to see a horse, which was to all appearance in perfect health, but which dropped exhausted when made to draw a load. The pulse was extremely irregular. In another similar case the horse frequently fell when working on the land, but went very well upon the road.

*Mr. Broad* mentioned the case of another horse he had attended in which the symptoms were different to those in the case he first related, the horse suddenly came to a standstill, and was attacked with epistaxis, but when brought home the pulse was not found to be so quick, about 60, but extremely irregular and intermittent.

*Mr. Wragg* said he knew a horse that had been at work regularly for about six years, though he had an intermittent pulse the whole time.

*Mr. Burrell* drew attention to the fact that it was known that a horse would continue at work for an indefinite period with intermittency of pulse, actual disease of the heart not being necessarily indicated, but he said he had never known a horse which suffered from an irregularly intermittent pulse to be capable of hard work. He referred to the pulsations up the jugular veins as one of the symptoms of heart impairment.

*Mr. Woodger* said it was his opinion that much heart disease in horses existed unsuspected. He had seen some attacked with palpitation while at work, in others the attack had happened in the stable ; one horse in particular had been hunted many times, but had the fatal attack of heart disease in the stable. He said that unfortunately veterinary surgeons had not the opportunities of diagnosing cardiac ailments, which human practitioners possessed.

*Mr. Woodger* then read an essay on "Farcy-Glanders and its Cause."

*Mr. Hunting*, in opening the discussion, complimented the writer on the practical and useful nature of his essay. He was pleased to hear that Mr. Woodger had become a convert to the modern views of the origin of glanders. He did not think that private practitioners generally had done so much towards eradicating the disease as Mr. Woodger had stated, especially in the rural districts, where cases of this kind were kept under treatment, unreported, and where much ignorance of the malady prevailed; for this state of things the erroneous views hitherto promulgated by the teaching centres were in a great measure responsible. It was taught that farcy was curable, and that glanders and farcy could arise from hard work, bad ventilation, and so on ; it was therefore now the duty of veterinary surgeons to help the Government and private individuals to undo the mischief wrought. Private practitioners could effect much good without legal enactments if they chose, but it was a question, he said, whether they all used this power. He had no doubt that farcy could be sometimes apparently cured, but not absolutely. Two years ago he would have said that farcy in young horses may be cured, but about eighteen months ago he saw a *post-mortem* examination which revealed the worst state of disease he ever witnessed, yet symptoms had only been developed a few days prior to death. Three years before the horse had been treated for farcy and seemed to recover. The disease will remain latent in the system for three years, then why not for four, five, six, or more years. He then related how an outbreak of glanders occurred among some coal-pit horses where dried matter upon the walls was the cause of disease. The stable into which the horses were put had been some years before occupied by a number of horses which had died off in a rapid manner from acute glanders, since which time the place had been shut up and untenanted. He thought much mischief, and spread of the disease in London, resulted from the sale of studs of horses in

which glanders had broken out, and that some restrictions should be put by the law to prohibit free sale at certain times, and under such circumstances.

The further discussion of the subject was then adjourned to the next night of meeting.

*Adjourned Discussion on the Subject of Mr. Woodger's Essay.*

This meeting was held on the 1st of February, at the usual place, the President in the chair; the other Fellows present being Professor Pritchard, Messrs. G. R. Dudgeon, F. G. Samson, G. Gray, A. Broad, H. K. Shaw, C. Sheather, J. Rowe, T. Burrell, W. Roots, and Wm. Hunting.

*Mr. Shaw* said he agreed with most of the statements of the essayist as to the origin and nature of the disease. He also had reason to think that goats and other small animals about a stable were carriers of contagion. He defended the inspectors acting under the authority of the Contagious Diseases (Animals) Act against the statements made by the President. As to the provisions of the Act, he thought, with Mr. Hunting, that more restrictions might be applied to the sale of horses from infected premises, such horses when sold by public auction causing a wide dissemination of disease.

*Professor Pritchard* questioned the speaker with regard to his reference to repositories, but Mr. Shaw said he spoke from intimate knowledge on the point.

*Mr. Samson* thought that owners of affected horses were allowed to keep them too long, and it was hard work to convince them that farcied horses should be killed; veterinary surgeons also too often unwisely kept them for treatment. He supported the assertions of Mr. Shaw that horses with latent disease were too freely sold from infected premises, and he regarded the frequent sales of cab stock with great suspicion. He agreed with the essayist as to the danger to be feared from dried matter upon the walls, and urged the necessity of thoroughly scraping and scrubbing all exposed surfaces prior to applying the disinfectant.

*Mr. Burrell* said, It is to be regretted that veterinary surgeons are so anxious to kill rather than cure, I do not see, he observed, why we should not treat a case of farcy, for some are curable; I have watched them for eight or nine years after recovery. It was admitted by Mr. Hunting that a horse, after treatment for farcy, may go for five, or even six years, without a reappearance of the symptoms. Now, I will invite him to go a little further and say an indefinite time, and I consider this equivalent to saying that the complaint may be cured, for surely if a horse may so far recover his health as to keep free from any symptom of disease for eight or nine years, we might expect the same to happen for any number of years. I think it well that we should understand what is meant by the phrase "latency." A case of so-

called latency is reported in the *Veterinary Journal* for April last, but it was a clear case of chronic glanders throughout. I am inclined to doubt whether the disease does become latent. We see the external symptoms disappear, and lung complications show themselves, but there is nothing latent in such a case. If a horse is free from any indication of disease, if there is no increase of pulse, and nothing to lead one to suspect that the animal has farcy or glanders, why should we assume that the complaint is latent in the system. If the horse should again suffer can it not be supposed that a fresh contamination has taken place, seeing that disease germs are so ubiquitous. He added that the cases for treatment should be picked; if the horse fed well, and if the disease was confined to one limb, it was, he thought, a hopeful case. Isolation was always to be adopted. "Stamping out" he considered impracticable for several reasons, one being the difficulty of making accurate diagnosis.

*Professor Pritchard* asked, "Have you ever found tubercles absent from the lungs of a horse which had suffered from farcy?"

*Mr. Burrell* said he had.

*Professor Pritchard* said it was a sight he would travel far to see; should he find lungs free from "tubercles," so called, he would say that the disease was not associated with glanders. He said that Mr. Burrell had exposed the weak point in his argument when he stated that, although he would treat, and cure, some cases of farcy, they should be completely isolated.

*Mr. Broad* said he understood Mr. Burrell to mean merely that he would isolate his mild case of farcy lest its contagion should produce in another horse an acute attack, either of farcy or glanders. Still he did not agree with the views Mr. Burrell had given; the "stamping out" of the disease could not be too rigorously enforced. The dangers and difficulties of isolation were very great. In practice he had found that where it was customary to treat cases, however isolated, there the disease was most rife and rooted, always cropping up, but in those stables where each outbreak was cut short by the slaughter of the animal it soon became of rare occurrence. He considered that the Act of Parliament had done much good, even though its provisions had been, as in the case of other Acts, often evaded. With regard to Mr. Woodger's remarks upon the different characters of the nasal discharge, he was of opinion that, if a horse had farcy, and, following out the suggestions, a catarrhal discharge appeared, the system would be so imbued with the poison of disease that the discharge would not be found innocuous.

*Mr. Hunting* said he would take up Mr. Burrell's challenge, and aver the possibility of entirely stamping out glanders, as had been the case with other diseases. He instanced the horses of the British Army, which had once been a hotbed for the malady, now it is rare in the returns. The Zulu, Ashantee, and Egyptian campaigns had all been finished without an outbreak of

glanders, though, among the Bengal Cavalry, some horses had fallen victims to it while in Egypt. Certainly, if eradicated, the disease might be reimported, as it had been already from New York. He said he had known stables in which glanders used to be exceedingly rife, but where it had now dwindled to a very small percentage. He quoted extracts from the Veterinary Report of the Privy Council for 1881. The Metropolis headed the list for number of cases, next came the Home Counties. Lancashire, though including Manchester, was very low on the list. Where the local authorities will not exert themselves there is, he said, great difficulty in eradicating the disease; this is the case in Manchester. He was of opinion that the Act had certainly done good, a few years ago one could safely count on finding at each of the slaughter yards in London one or two cases of glanders or farcy on any day of the year, such is not the case now. If Mr. Burrell's advice were acted upon he agreed that it would be impossible to eradicate farcy or glanders. It was probably true that a horse might recover from farcy and never show any symptoms again, but such cases are few and far between, hardly one per cent., and we must legislate for the ninety and nine.

*Mr. Broad* said that his conclusions with regard to the latency of the disease were supported by the results of *post-mortem* examinations. He had seen horses apparently recover from farcy and glanders, and they had, at various times subsequently, met with accident, or some totally different disease; in their lungs the characteristic miliary tubercles were found; the same state of lungs was occasionally seen in the examination of horses dying from non-specific complaints, those horses having come from stables harbouring the disease, but having never been known to show any symptoms, either of glanders or farcy.

*Mr. Sheather* said he had had medical charge of a large stud of horses for six or seven years, it had been the rule formerly to kill annually some two or three and twenty horses for glanders. Farcy was treated, he said, to the bitter end. After great difficulty he inaugurated a different system, and slaughter began wholesale, error being only made on the safe side. The stud became remarkably healthy, many months passing without a case. The disease could be "stamped out" if the requisite trouble were taken. It was, he said, very necessary to watch the incoming horses. A stable could not be kept free if horses were bought from all sorts of places. He thought that other affections were often mistaken for farcy and cured. He referred to a horse he had which only suffered from a persistently swollen hind leg, amenable to no treatment; after slaughter the lungs were found extensively diseased.

*Professor Pritchard*, replying to a question from Mr. Shaw, said he believed that the lungs were always implicated; glanders and farcy were synonymous terms, the same disease in different situations. There were, he said, many affections of the absorb-

ents of the limbs unassociated with farcy, and these are cured; genuine farcy you will not cure.

*Mr. Woodger*, in the course of his reply, said he did not attach so much blame for inefficiency to the inspectors as to the Act of Parliament. In stables where the loss from this disease is great and continuous, what good is effected by the Act as now enforced? He had never seen a reputedly cured case go longer than three years without a relapse. In every farcied horse, examined by him *post mortem*, he had found miliary tubercles, and he thought that the lungs were not so much affected in acute glanders as in cases of milder type. He was able to point to several studs of horses in his district from which glanders and farcy had been quite eradicated. He instanced cases of the mischief resulting from the indiscriminate sale of an infected stud of horses.

*Mr. Hunting* then proposed a vote of thanks to Mr. Woodger for the essay contributed, *Mr. Burrell* seconded the proposition, and it was unanimously carried.

*Mr. Roots* laid a morbid specimen before the meeting. It showed a thick pedicle, about six inches long, attached at one extremity to the colon and mesenteric glands, at the other to the abdominal wall on the near side. The horse had been in the possession of his late owner for only three months; it had suffered from abdominal pains, and latterly from acute enteritis, the last attack was prolonged for about thirty-six hours and was terminated by a very painful death. The small intestines were found strangulated by the cord-like formation. The mesenteric glands at this point were swollen and contained pus.

*Mr. Pritchard* said the case appeared shrouded in much mystery, but he thought there was scrofulous disease of the mesenteric glands, and that the peduncle was a morbid growth originating from them.

ALFRED BROAD,
*Hon. Sec.*

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## YORKSHIRE VETERINARY MEDICAL SOCIETY.

THE annual meeting and dinner were held at the "Queen's Hotel," Leeds, on Friday, the 9th of February, the President, Mr. J. M. AXE, in the chair.

The following members present, viz. Messrs. T. Greaves, Jas. Freeman, J. S. Carter, Josh. Freeman, Peter Walker, J. H. Ferguson, Parlane Walker, Geo. Carter, P. Deighton, Geo. Hardie, R. L. Robertson, G. Bowman, T. C. Toop, Geo. Whitehead, W. F. Greenhalgh, H. Cooper, M. E. Naylor, J. E. Scriven, B. Smith, and the Secretary.

Messrs. W. H. Coates (London), C. W. Elam (Liverpool), Thos. Briggs (Bury), and E. Faulkner (Manchester), were present as visitors.

Apologies for non-attendance were received from Professors Williams and J. W. Axe, Messrs. C. R. Dray, J. W. Anderton, G. Schofield, J. Tatam, W. Lodge, H. Snarry, J. Bale, D. Sowerby, S. F. Fallding, J. L. Faulkner, Jno. Fryer, and F. Danby; Messrs. E. T. Cheesman, 5th Dragoon Guards, and R. H. Ringe, 11th Hussars, and a number of Lancashire friends.

The minutes of the previous meetings were read and confirmed.

*Mr. Broughton* proposed, and *Mr. Carter* seconded, the election of Mr. A. W. Briggs, Halifax. Carried unanimously.

*Mr. Peter Walker* proposed, and *Mr. Naylor* seconded, the election of Mr. Henry Carter, Bradford. Carried unanimously.

The *Secretary* nominated Mr. Henry Fletcher, Sheffield, for membership.

The *Secretary* proposed, and *Mr. Peter Walker* seconded, a vote of thanks be given to Mr. J. W. Anderton for his services in the Council during his term of office, now expiring, and that he be requested to offer himself for re-election.

Should Mr. Anderton decline it was resolved to nominate Mr. Broughton,

The *Secretary* introduced the subject of the National Veterinary Medical Association, and invited the members to give the movement a hearty support. Messrs. Greaves and Briggs also urged the members to support the Association.

The *President* read the Inaugural Address.

Gentlemen,—It is my first duty to thank you for the honour you have conferred upon me in electing me to fill the Presidential chair of the Yorkshire Veterinary Medical Society during the present year. It is hardly necessary for me to say how few of those qualities I possess which fit a man to direct the affairs of an Association of this description, still less need I remind you, how abortive must be any attempt of mine to emulate the high accomplishments and business attainments which have distinguished our late President and predecessors, and which in the past have contributed so much to the interest of our body and the good of the profession. I cannot claim to possess either the power to initiate or the confidence to guide the necessary movements which these days of rapid progress and scientific growth demand at the hands of those who accept the responsibilities of office. It therefore becomes me best to proclaim my weakness, and to make known how much I must rely on your individual and united support for the success of my year of office. It is not enough, I know, to possess the will to achieve success, but it needs, likewise, to find the way. The latter merit, it has often been said, is the necessary outcome of the former, but I fear, in my case at least, this very encouraging proposition will fail me without the assistance of your valuable advice and the generous indulgence and forbearance which I know you are well capable of extending to your colleagues in the conduct of our

affairs. I may be permitted to say that never, in the whole history of our profession, was there a time when greater vigilance was needed in the discharge of our political and scientific responsibilities than the present. In the immediate past a great and important constitutional change has been effected mainly by that system of co-operation and mutual help of which veterinary medical associations are the spirit and embodiment. The Veterinary Surgeons Act, which our Senators have recently procured for us, is the greatest and most effective triumph of our existence as a corporation, and a noble stimulus to even greater achievements in the future. It is not a little encouraging to know that the title which we have so long and so patiently shared with the ignorant and dissolute is now to pass into our own hands and to become the exclusive right of the profession. It cannot, however, be forgotten that although a great want has been supplied, and a great dignity conferred upon the title by which we are now distinguished, there has at the same time been imposed upon us a heavy and necessarily long-abiding burden. Vested interests have in our case, as in many others, asserted their right to protection, and the Legislature has seen fit to demand of us concessions which for the time must seriously detract from the honour and distinction which we have sought and obtained for our professional title. That the qualified practitioner should be distinguished from the unqualified is no less in the interest of the public than ourselves, and having regard to the superexcellence of our live stock over that of other nations, and the ever-growing facilities for the dissemination of diseases, both home and foreign, the withholding of State aid so long and persistently cannot surely be regarded otherwise than culpable negligence, both of our profession and the best interests of the country. Gentlemen, I would here remind you that although our title has been protected empiricism still remains unmolested, and under the title of farrier or other evasive descriptions it is still legitimate for the pretender to share in the emoluments of our calling. We have not annihilated quackery, but merely weakened its pretensions. While, then, we value at its worth the distinction just secured to us, let us not rest satisfied, but with redoubled energy seek to further disarm and illegalise the charlatan, and acquire for ourselves the exclusive right to practise veterinary medicine. I believe up to the present over one thousand persons have claimed to become registered as veterinary surgeons; amongst them are men of undoubted probity and honour, well versed in the practice of the profession, and whose social position is not inferior to our own, but I fear there are still more whose personal and professional qualities are, to say the least, inexcusably pernicious if not actually demoralising. It is to this latter class that I would ask your attention in the immediate future, and solicit your aid in an endeavour to exclude them from the privileges of registration. Gentlemen, while we give the political side of our duties its due share of attention, do not let us forget the chief object of

our service, namely, the science and art of comparative medicine. In this direction there is much to be done, and I trust the present session may be rich in useful work and fruitful of good and lasting results to ourselves and our profession.

*Mr. Jas. Freeman* proposed, and *Mr. Josh. Carter* seconded, a unanimous vote of thanks to the President for his inaugural address. Carried unanimously.

At the dinner the usual loyal and patriotic toasts were proposed and duly acknowledged, followed by a number of veterinary toasts, and a most enjoyable evening was spent by all present.

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## MIDLAND COUNTIES VETERINARY MEDICAL ASSOCIATION.

The forty-eighth meeting of the members of the above Association took place on Friday, the 26th ult., at the Stork Hotel, Birmingham, Captain Russell, President of the Association, in the chair.

There were also present: Members—Messrs. T. Blakeway (Treasurer), R. C. Trigger (Hon. Secretary), L. C. Tipper, A. Hodgkins, O. Hills, Geo. Smith, F. W. Wragg, H. D. Pritchard, H. Oliver, H. M. Stanley, F. W. Barling, D. Aiken, Augustus Bowles, Robt. H. Cartwright, A. C. Robertson, Wm. Carless, Edwd. Meek, A. Over, H. J. Cartwright, Thomas Greaves, Harry B. Lutterworth, H. R. Perrins, A. B. Proctor, Edwd. Stanley, E. Beddard, W. G. Barling, and visitors—Messrs. J. S. Barber (Rugby), Thos. Horton (Birmingham), Peter Taylor (Manchester), and H. Turner (Birmingham).

The minutes of the last meeting having been read and confirmed,

The *Treasurer* read his annual statement of accounts, which showed a balance in favour of the Association of £128 0s. 8d.

The following gentlemen were then elected members of the Association:—Mr. R. Verney, of Stratford-on-Avon, and Mr. J. S. Barber, of Rugby.

The meeting then proceeded to the election of officers for the ensuing year. Mr. Wm. Carless, of Stafford, was elected President; Mr. L. C. Tipper was elected Hon. Secretary; Mr. Blakeway re-elected Treasurer; and Messrs. H. Pritchard (Wolverhampton), W. G. Barling (Ross), and Captain Russell (retiring President), Vice-Presidents.

After some conversation it was resolved that Mr. Olver be elected to represent the Association as a candidate at the next election for members of the Council.

A discussion then took place as to the right of this Society to elect a Life-Governor to represent them on the Veterinary

Benevolent and Defence Association (in place of Mr. Carless, deceased) without payment of further subscription, and as to whether the term Life Governor representing a Society applied to the life of the individual selected or to the life or existence of the Society.

*Mr. Greaves*, Treasurer of the Benevolent and Defence Association, was clearly of opinion that this rule applied to the life of the gentleman elected only.

On the other hand, *Mr. Peter Taylor*, President of the same Association, believed that the Life Governorship appertained to the life of or existence of the Association paying the subscription.

The latter gentleman having kindly announced that a meeting of the Benevolent and Defence Association should shortly be held, and the matter be definitely settled, it was resolved that the further consideration of the matter be deferred until the next meeting.

*Fleming Testimonial Fund.*

The sum of £46 2s. has been subscribed by members of this Association, and kindly collected by Mr. E. Stanley, of Warwick.

The discussion on Mr. Over's paper on Soundness in Horses was then resumed.

*Mr. Olver* said so long as by law soundness meant perfection they could never say that any horse was in a legal sense actually sound. For himself, in writing out certificates, he generally said if the horse was to all intents and purposes sound, with the exception of some slight defect, which would not be likely to interfere in any way with its capabilities of performing the work it was required for; that the horse was sound, with the exception of such and such defect, which might or might not interfere with its practical usefulness.

*Mr. Blakeway* said that they might discuss the question from now till next year without coming to any definite decision upon it. Their perplexity on the subject was not to be wandered at when they saw some of the most learned legal authorities in the land differ as much as they did on the question of what constituted soundness in horses. Judges on the bench insisted that crib-biting was not unsoundness but only a habit. Now, Mr. Over said everything that impeded usefulness in a horse was unsoundness; therefore, on that question he and the judges were at issue. Then as to the splints. If a veterinary surgeon passed a horse with splints without qualifying his certificate, which was frequently the case, although he might believe that such defect would not interfere with the working capabilities of the horse, some client might come to him at any moment and say the horse was unsound, and the surgeon ought not to have passed him. It was a very vexed question to decide upon. He thought the best thing for them to do was to qualify their certificates and give their decision as their opinion only.

*Mr. Greaves* also believed that it was inevitable that a great number of different opinions should exist on the question. However experienced a man might be he could not help occasionally differing in other respects as to whether a horse was sound or not. He was intimately acquainted with one of the first men in Manchester—that was a man who had a greater number of horses brought him to examine than any other man in the town. Another gentleman he knew in Liverpool, who had also had very great experience in the same direction, and he had heard both of them say, "I have rejected many and many a horse I had no business to reject. I rejected them because perhaps they had enlarged backs. I have watched some of the horses thus rejected in the hunting field season after season, and they appeared to be as sound as possible." Now, he (the speaker) thought veterinary surgeons might do injury to their clients by being over particular. They might prevent a client becoming possessed of a valuable sound horse by rejecting a horse that was quite capable of doing all the work that might be required of it. It was quite necessary that they should take into account the age of the horse, and whether he was thoroughly seasoned or not, for at one period it would be dangerous to pass a horse with defects which at other periods would be of little or no consequence. He was of the same opinion as the other speakers as to the advisability of qualifying their certificates. Such a horse they might say was sound with the exception of a splint or curb, which might or might not interfere with his work. If they thus qualified their certificates they could not do wrong.

*Mr. H. J. Cartwright* said if a horse had splints he should always make an observation to that effect. He would never pass a horse with side bones as a sound horse, or a crib-biter, without drawing attention and remarking on the defect. If a horse had enlarged hocks he should pass him without observation as sound, if enlargement did not interfere with his action. With regard to the present state of the law, he thought it would be very difficult to alter it so as to meet their case. He did not see how it was to be done.

*Mr. Perrins* asked Mr. Cartwright what he would do in case a client came to him and said—"I want you to tell me whether this horse is sound or unsound. I am sufficient judge of its merits and capabilities for work. I only ask for a professional opinion as to its complete soundness or otherwise."

*Mr. Cartwright* said in that case he should say sound or unsound as the case might be. If unsound he should state the nature of the defect or defects, and if asked should give his opinion as to whether the defects would interfere with the horse's usefulness.

*Mr. Perrins*, continuing his remarks, said there was one question which deserved attention even more perhaps than that as to soundness of horses, viz. professional charges for examination. He had heard that some veterinary surgeons examined horses

for 5s. As such great responsibility was laid on the shoulders of veterinary surgeons they ought to be adequately compensated for the risks they ran (hear, hear).

*Mr. Peter Taylor* said he was quite of opinion that a veterinary surgeon had a right to protect his profession. With regard to the definition of soundness, he understood it to be "free from all disease." Clients brought horses to them which perhaps they had never seen before, and they were expected to examine it and give an opinion as to his soundness or otherwise, and give a certificate off hand as to his condition. On that certificate they were held responsible. If they passed a splint, however trifling, or enlargement of the hocks—which might be the product of disease or the product of nature—they were held responsible for passing an unsound horse. Unfortunately for the profession, they could not tell whether a horse would prove a good one or not. They could not state, for instance, whether whistling, not serious in itself, might not develop into something very serious. They were placed in a very peculiar position, and as a practical man he considered that their best safeguard was to protect their own reputation and themselves, and on all occasions give themselves the benefit of the doubt. They would find in following their profession that clients were not particular whose feelings and whose reputation they injured, and it was quite possible for a veterinary surgeon by one false move to lose in a week a reputation which had taken twenty or thirty years to obtain.

*Mr. Stanley*, of Warwick, said the difficulty was that men often brought horses and wanted certificates, not of absolute soundness, but of practical soundness, which was to all intents and purposes equivalent. If, however, the horse did not turn out well, and the matter went into a court of law, learned counsel would say: "What did you mean by giving a certificate with an unsound horse?" They wanted the power to say to their clients—"This horse is suffering from splints, or spavin, or what not," and if the client wanted an opinion as to the value of the horse, to say—"Well, if it were me I would buy him, because I do not think such and such complaint will interfere with his usefulness." Thus if a horse was brought to them it would be better to send to their clients two documents, one a formal certificate as required by law, and the other one an expression of opinion as to the practical value of the horse. The clients would in that way have the benefit of a professional opinion with regard to the horse as well as the formal certificate. There had been a good deal said about splints; he always thought splints were not unsoundness unless they caused lameness or interfered with the usefulness of the animal.

*Mr. F. W. Wragg* said if he saw a horse with splints he should reject him as unsound, as they were liable to make the animal go lame at any time.

*Mr. Greaves* said it depended on what sort of work the horse

had to do. If he was put to harness work it was ten to one against him going lame at all.

*Mr. Henry Meek* agreed with the suggestion that it would be well to send with their certificates a written opinion as to whether such defects as the horses might possess were likely to interfere with their usefulness.

The *Chairman* said they had listened to a very instructive and interesting debate, but he must confess he should have liked to hear a few remarks about grunting. They were told by Professor Walley that grunting was not unsoundness. He (the speaker) was of opinion that grunting was abnormal; and anything abnormal must be unsoundness. In the matter of giving certificates it behoved them to take a common sense course, keep their tempers, and act with decision.

The discussion then terminated, a vote of thanks being accorded to Mr. Over for his paper.

A vote of thanks was then passed to the retiring officers, and it was decided to hold the next meeting of the Association at Stafford.

In the evening most of the members present dined together at the hotel. A very agreeable evening was spent.

ROBT. C. TRIGGER, *Hon. Sec.*

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## ONTARIO VETERINARY MEDICAL ASSOCIATION.

THE annual meeting of the Ontario Veterinary Association was held in the Ontario Veterinary College, Toronto, on Thursday, December 21st, 1882.

Members attended from all parts of the Province, also some from the United States.

The *President* (Mr. Elliot), in his opening address, referred to the advancement of the profession in Canada, and citing as proof of the confidence of the public in its members, that not a dollar of the funds of the Association had to be expended in defending members in law courts. He expressed his opinion that a beneficient society in connection with the Association would be appreciated by its members, and closed his remarks by a well-merited eulogium of the Ontario Veterinary College.

The minutes of the last meeting were then read and confirmed, and the Secretary and Treasurer's reports read and adopted, showing the finances of the Association to be in a healthy state.

*Dr. Duncan* moved, seconded by *Mr. Wilson*, supplemented by some very complimentary remarks by Professor Smith, that in view of the great services rendered to the veterinary profession by George Fleming, Esq., F.R.C.V.S., and through his

valuable contributions to veterinary literature, his exertions in the passage of the Veterinary Act of 1881, and in other ways—therefore be it resolved, "That the Ontario Veterinary Association, on behalf of Colonial practitioners, records its high appreciation of the labours of Mr. Fleming, and requests its Treasurer to forward the sum of twenty-five dollars as a contribution towards the testimonial about to be presented to that gentleman in acknowledgment of these services."

*Mr. Cowan* moved, seconded by *Mr. Coleman*, "That the Association having learned with pleasure of the honour that had been conferred on Professor Smith, Principal of the Ontario Veterinary College, by electing him an Honorary Associate of the Royal College of Veterinary Surgeons, desired to express its appreciation of the honour conferred on the respected Professor of the Ontario College, and through him on the veterinary profession on this continent." Carried.

*Dr. Duncan*, in addressing the meeting, expressed the hope that increased interest might be taken in the meetings, and that members should regularly read and discuss papers at each meeting.

Messrs. Rogers, Cowan, and Sweetapple agreed to read papers at the next meeting.

*Mr. Hinman* gave a very interesting account of a peculiar case in his practice.

Attention was called to a party advertising illegally as a veterinary surgeon, and the Secretary was instructed to notify him to discontinue so doing.

Some matters relating to the tariff of fees were then discussed.

Several new members were duly elected.

The election of office bearers for the ensuing year then took place with the following results:—Mr. C. Elliot, re-elected President; Mr. Coleman, first Vice-President; Mr. Oneil, second Vice-President; Mr. Sweetapple, Secretary; Mr. Cowan, Treasurer; Messrs. Hamilton and Hinman, Auditors; Messrs. Hinman, Sanderson, Hamilton, Cæsar, Wilson, Logan, Steele, and Grange, Directors; Professor Smith, Honorary Director.

Moved by *Mr. Wilson*, seconded by *Mr Oneil*, "That the sum of twenty-five dollars be appropriated for a medal to be competed for by the students of the Ontario Veterinary College at the Spring Examination." Carried.

The meeting then adjourned, to meet again in the spring.

# MONTREAL VETERINARY MEDICAL ASSOCIATION.

## AN IMPORTANT MEETING.

The fortnightly meeting of this Association was held last night in the Lecture Room of the Veterinary College, Prof. McEachran in the chair. Besides a large number of students and Veterinary surgeons, there were present Ald. Fairbairn, Mr. Bickerdyke, Mr. Morgan, Mr. Versailles, and others interested in the subject of discussion, inspection of meat and abattoirs. After routine business, Mr. Bell read an exhaustive paper on "Navicular Disease;" Mr. Clement reported the operation of lithotomy on a horse, performed on Monday last, at the College, by the Principal, and exhibited the calculus weighing three and a half ounces, the horse being now considered out of danger, and will be discharged on Saturday next. Mr. Daubigny then read a paper, in French, on "Meat Inspection and Abattoirs," in which he pointed out the defects of the inspection as at present carried on at the abattoirs, urged the necessity of *ante-mortem*, as well as *post-mortem* examination by scientific inspectors, who should be microscopists, so as to enable them to detect the presence of parasitic diseases. He noticed at length the thorough system followed by the governments of France and Germany, and in conclusion urged that the inspectors should be well paid, so that they should be independent, and they should have the moral support of the community besides the proper legal authority, to carry out thorough inspection in the public interest. The paper was a very able and scientific exposition of the subject, which was listened to with marked attention, and called forth eulogistic remarks by Alderman Fairbairn, Mr. Bickerdyke, Mr. Morgan, and others, who urged improvement in the by-laws, giving inspectors power of confiscation, moving cattle markets to the abattoirs, having cattle kept twenty-four hours before being killed.

*Dr. McEachran*, in a few remarks on the subject, referred to its great importance. One of the most important duties for a college like this was to prepare the students to become thorough sanitarians. Meat inspection was a most important sanitary question. There could be no doubt that scientific inspection was the best mode. Years ago it was laughed at, but to-day it was gaining many supporters. He referred to the fact that pork from the United States was shut out from Germany and France, because these countries knew that there was no inspection in the United States. It remained for Canada, Dr. McEachran said, to open up this field, and thus gain an immense trade with these countries. He said that scientific inspection would be the very backbone of the butchers' trade who would

lose nothing by its adoption. He expressed the opinion that the inspectors should all have the power of confiscation, as without this power their inspection was worthless, and he hoped that the agitation for this improvement would be kept up until it was obtained. He was also of opinion that slaughtering outside the city limits should be abolished, and that no animal should be slaughtered for human food until it had rested twenty-four hours.

On motion of *Ald. Fairbairn*, seconded by *Dr. Alloway*, a vote of thanks was returned to the lecturer for his interesting paper, and the meeting then adjourned.

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## NEW MEMBERS OF THE PROFESSION.

At the several meetings of the Scottish Section of the Court of Examiners of the Royal College of Veterinary Surgeons, held in Edinburgh on the 17th of January, 1883, the following students passed their *Final Examination* and received the diploma:

### Edinburgh Old College.

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|---|---|
| Mr. J. A. Braddell . . . . | Mallow, Co. Cork. |
| — Samuel Bailie . . . . | Ballynahinch, Co. Down. |
| — James Anderson . . . . | Methven, Perthshire. |

### Edinburgh New College.

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|---|---|
| Mr. T. A. Mitchell . . . . | Leith. |

The following students passed their *Second Examination* on the 16th of January:

### Edinburgh Old College.

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|---|---|
| Mr. Thos. Wooff. | Mr. Wm. Franklin. |
| — H. Gilsthorpe. | — John Hackett. |
| — Charles Nowell. | |

### Edinburgh New College.

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|---|---|
| *Mr. A. H. Spinks. | Mr. F. W. Kendall. |
| * — R. H. Settle. | * — Josh. Faulkner. |
| — A. E. Darwell. | — T. J. Davies. |
| — Chas. Pringle. | — P. A. Porteous. |

The following passed their *First Examination* on the 15th of January:

### Edinburgh Old College.

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|---|---|
| Mr. W. Tindall. | Mr. Arthur James. |
| — Alex. Davidson. | — J. Soga. |
| — A. Smith. | — J. Riddock. |
| — John Gemmell. | — F. Brown. |

* Marked thus, passed with *Great Credit*.

EDINBURGH NEW COLLEGE.

| | |
|---|---|
| Mr. T. Watson. | Mr. A. G. Corner. |
| — A. W. Middlehurst. | — F. C. Golden. |

GLASGOW COLLEGE.

| | |
|---|---|
| Mr. R. S. Mitchell. | Mr. D. M. Gray. |
| — J. G. Deans. | |

## Parliamentary Intelligence.

### FOOT-AND-MOUTH DISEASE.

HOUSE OF COMMONS, *Feb.* 19*th.*

MR. MUNDELLA, in reply to MR. BIRKBECK, stated that on the 30th January the Steamer Kansas arrived at Liverpool with 313 head of cattle and 298 sheep. The inspector of the Privy Council at Liverpool certified that 219 of the cattle were affected with foot-and-mouth disease and 6 sheep with the scab. The cargo was landed at Birkenhead and slaughtered.

It was not the intention of the Privy Council to prohibit the importation of live stock from foreign countries where disease was known to exist. He was advised that there was no country in the world where disease as defined by the Act was not believed to exist, and prohibition would be a direct violation of the principles of the Act, which distinctly provided for the slaughter of animals coming from countries where disease existed.

## SMITHFIELD CLUB.

### THE DENTITION OF PIGS.

AT a meeting of the Council of the Club, held on February 7th, Col. Kingscote, C.B., M.P., Vice-President, in the chair, the following important resolution was adopted on the recommendation of Mr. Jas. Howard, M.P.:

"That with each entry of pigs a certificate be required, signed by a qualified veterinary surgeon, upon a form supplied by the Club, testifying that the pigs have been examined, and that 'their dentition is in accordance with the recognised state for their respective ages.'"

## APPOINTMENT OF CHIEF VETERINARY INSPECTOR FOR THE COUNTY OF DURHAM.

We are informed that the Executive Committee of Magistrates for the County of Durham for carrying out the provisions of the Contagious Diseases (Animals) Act, 1878, has appointed Mr. John Edward Peele, M.R.C.V.S., Chief Veterinary Inspector.

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## ROYAL AGRICULTURAL SOCIETY'S PRIZES.

At the competition which took place for these prizes on the 27th of January—Mr. W. H. Edgar won the *first prize* (Gold medal and £20); Mr A. H. Archer, *second prize* (Silver medal and £10); and J. B. Gresswell, *third prize* (Bronze medal and £5).

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## APPEAL ON BEHALF OF THE WIDOW AND FAMILY OF THE LATE MR. J. BROSNAN.

Royal Veterinary College, Edinburgh;
*February 18th*, 1883.

Dear Sirs,—Will you kindly allow me, through the pages of your Journal, to make an appeal to my professional brethren on behalf of the widow and family of a veterinary surgeon recently deceased? The lady to whom I refer is the widow of an Irish V.S.—Mr. J. Brosnan. She is left with eight children in very indifferent circumstances, and without any means of supporting her family.

I feel that the Freemasonry which pervades the minds of the members of our profession will not permit this appeal to be made in vain, and I shall be very happy to receive subscriptions, and will acknowledge receipt of same in the journals.

I am, yours faithfully,

Thomas Walley.

*To the Editors of the 'Veterinarian.'*

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## OBITUARY.

The Registrar reports the death of Mr. Thomas Adamson, M.R.C.V.S., Darlington. He graduated April 30th, 1856.

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## ERRATUM.

Page 95, *literateurs* should be *litterateurs*.

THE

# VETERINARIAN.

VOL. LVI. No. 664. APRIL, 1883. Fourth Series, No. 340.

## Communications and Cases.

### ACTINOMYKOSIS BOVIS.

(*Illustrated by Original Drawings.*)

By J. Wortley Axe, Professor of Pathology, &c., at the Royal Veterinary College.

(*Continued from* p. 81.)

#### Micro-Pathology of Tongue.

*Epithelium.*

*Stratum corneum.*—The horny layer is variously changed. In some parts of the tongue it is altogether absent, in others it is increased in thickness, either in consequence of simple hypertrophy, or as the result of swelling of the epithelial elements, and in some instances also rising out of extra local compression and horny transformation, due to enlargement of the underlying papillæ.

Loosening and partial separation of the horny cells exist over smaller or larger areas, imparting to the surface a rough, broken, and shaggy appearance. Here and there the stratum corneum, as a whole, is raised either in the act of *exfoliation*, or by the force of the papillæ beneath, in which exuberant cell growth has caused swelling and enlargement.

In the former case it is more or less separated from the contiguous layer; in the latter, the rete is seen to have undergone partial disorganisation. Should this change be complete—as sometimes occurs—the rete is annihilated and reduced to a disorderly mass of free nuclei. Now, the horny layer is observed

to have fallen in, and at the same time to be excavated from above. Isolated leucocytes may be found in the horny cells, and small groups of them are likewise present in minute variously shaped intercellular spaces.

*Rete Malpighii.*—We here remark various degrees of general thickening, with elongation and widening of the interpapillary processes, due to hypertrophy or increase in the total amount of the cell mass, or where the disease is severe, opposite conditions may prevail, chiefly arising out of concomitant changes in the structure of the mucosa. In the latter connection the interpapillary columns are pushed aside or compressed. In some instances they are partially or completely divided transversely through the centre by the irregular enlargement of the papillæ, between which they are placed. During the upward and lateral growth of the latter, the rete cells appear to undergo marked degenerative changes. At first becoming cloudy, they are then seen to be resolved into a granular state, and afterwards to lose their outline marks and break up. In this way the nuclei are set free, and become a disorderly nuclear mass, mingled with exudation corpuscles, and granular *débris*. In parts where the force of the disease has been less energetic, the interpapillary columns are rendered irregular by local excavation, or are altogether removed by absorption in the course of a gradually increasing hypertrophy of the papillary structure. In this instance the rete is stretched and flattened out in the form of a thin subcorneal layer, or it may be completely dispersed, the corneal stratum being at the same time thickened by active horny transformation of the Malpighian elements. Migratory corpuscles sometimes infiltrate the cell mass, or accumulate in small and irregular cavities, in which several detached epithelium forms may at the same time exist.

### *Cutis.*

*Papillary layer.*—The papillæ undergo considerable enlargement and elongation, so much so in some parts as to lead to atrophy or, may be, irregular excavations of the inter-papillary cell processes, or even complete disintegration and obliteration of the entire epithelial investment of the part.

In certain situations they are small, contracted, and deformed. Cell infiltration, in greater or less amount, is commonly present, sometimes so much so as to obliterate the boundary line between the mucosa and the Malpighian layer, and reduce the papillary tissue to a fragmentary and degenerate condition. At this time the middle and deeper layers of the rete Malpighii are infiltrated with leucocytes, and the epithelium elements become loosened, and, sinking, mix with the papillary exudation mass and connec-

tive-tissue *débris* beneath. The space thus rendered vacant is bridged over with the stratum corneum, either alone or together, with the attached remains of the broken rete.

Simple attenuation and absorption of papillæ overlying fungus nests frequently occur as the result of pressure and consequent diminished blood supply.

*Subpapillary layer.*—The subpapillary layer is the seat of well-marked changes, the most conspicuous and constant of which consist in a more or less general infiltration of exudation corpuscles and an increase in the nuclear elements of the connective tissue. The exudation cells are either accumulated in small groups or large masses contained in round or irregular spaces, or arranged in elongated tracts between the connective-tissue fasciculi. The fibrous bundles in the vicinity of this cell infiltration lose their sharp, wavy outline, and become swollen and undergo more or less complete hyaline degeneration. Sometimes the connective-tissue fasciculi are replaced by cell masses.

When the disease is severe, and the cell infiltration abundant, the meshes of the connective tissue are greatly enlarged and distended. In these more intensely inflammatory foci compression and occlusion of the vessels would seem to result in degeneration of small areas of connective substance owing to withdrawal of blood supply. Here and there softening and disintegration of groups of exudation corpuscles may be seen, as well as more or less attenuation and atrophy of the fibrous bundles. In other situations the connective tissue is hypertrophied and its texture rendered closer and more compact.

*Fungus nests.*—The presence of fungus nests enclosing groups of the actinomyces constitutes the most constant histo-pathological feature of the disorder. These peculiar formations may occur in very large numbers, and be closely packed together, or they may be few and far between; they are, however, invariably present where the disease exists. I have seen them in every part of the structure of the tongue, but it is in the submucosa they are most frequently and most abundantly found. The nests consist of large masses of cells heaped around smaller or larger colonies of fungi, which they everywhere enclose. They are rounded in form, excepting where two or more converge, when they present a lobulated or irregular outline. In size they vary according to the strength of the colony and the amount of inflammatory growth present. The cells of which they are composed vary in character under different circumstances. Sometimes they are distinctly epithelioid, and contain a simple nucleus, which stains deeply with hæmatoxylin, the cell substance remaining clear and faintly distinguishable. In form they are polygonal or rounded. Beyond these, which make up

the chief bulk of the cell mass, there is a narrow zone of irregular concentric layers of fibro-plastic corpuscles. No intercellular substance intervenes, but under certain conditions, presently to be referred to, branching fragments of degenerated connective tissue are present ramifying through the growth. As each cell mass enlarges it condenses the connective substance around it, and in this way becomes enclosed in a capsule, through which exudation corpuscles are scattered in greater or less amount, as well as the granular remains of cell disintegration. In other and more common examples of these fungus territories the cell elements exhibit a great variety of shape, size, arrangement, and condition. Some are round, others hexagonal, oval, rhomboid, &c. They are huddled together without any order whatever into a confused heap, through which are interspersed large numbers of free nuclei, seemingly derived from the proliferous multiplication of connective tissue elements. It is in these examples, which would appear to be formed under a more energetic inflammatory action, that necrosed portions of connective tissue appear within the cell masses. The cells of the fungus territory differ from those of the epitheliomata, not only in their smaller and more uniform size, but also in the fact that they do not form the characteristic dense "concentric globes" or "bird's nest bodies." Like as in tubercle the cell masses of actinomykosis rapidly undergo degeneration. The change is first seen in the centre of the growths, when the outline of the cells disappear, and they become cloudy and granular, after which they shrink and finally break down into an opaque granular mass. The degenerative process extends from the centre towards the circumference, until the whole is resolved into a caseous condition. The nature of the change involved is essentially fatty degeneration. During the process of cutting and manipulating, the caseous and loose cell masses fall out, when holes with irregular edges are left; similar but more irregular spaces result from the displacement of islets of connective tissue, which have perished in consequence of the blood supply having been cut off.

Smaller apertures and irregular clongated spaces of considerable extent seem to arise from the displacement of rounded groups, and cylindrical masses of exudation corpuscles in the vicinity of the fungus nests.

*Muscles.*—An important feature in the micro-pathology of actinomykosis of the tongue, is the cell infiltration of the connective tissue, and proliferous multiplication of its nuclear elements and of the muscle nuclei. The new cell forms are as a rule unequally distributed among the muscle fibres, being in some parts widely scattered, in others collected together in dense, rounded, or irregular groups. There is also observable in con-

nection with the latter condition, more or less fibrinous exudation, which, together with the cell growth, have the effect of separating the fibres from each other, and inducing serious textural alterations. New connective tissue, studded with spindle-cells, is abundantly present in the structure of the muscle, and by its maturation and contraction leads to atrophy and destruction of its fibres over very large areas. By the presence of the inflammatory exudate and embryonic new growth the muscle fibres are squeezed, and may be seen on the borders of the fungus nests flattened out and reduced in their diameter to one fourth or one eighth their natural size. Over very considerable areas they are entirely absent, the collapsed sarcolemma only being here and there observable to mark their former presence, while bordering on such parts they seem reduced in size to the dimensions of a white or red blood-corpuscle. In many fibres yet maintaining their normal proportions the striations are indistinct, or even entirely removed, they exhibit a dull, faintly granular appearance, and are obviously in a state of commencing granular degeneration.

Limited areas of vitreous degeneration are frequently observed. Here the fibres lose their striations and become transparent, homogeneous, and glass-like. As I have already pointed out, the muscle fibres are largely invaded with psorosperms. These are seen in transverse sections as a group of highly refractive granules, enclosed in the myolemmatous sheath (Pl. II, fig. 1).

When the fibres are cut longitudinally they appear as elongated, ovoid, granular-looking masses (Pl. II, fig. 2).

*Vessels.*—The changes in the blood-vessels consist of cell-infiltration and fibrous thickening of the walls, degeneration, and collapse.

### *Pharynx.*

Actinomykosis of the pharynx presents itself either as a diffused submucous growth of "fungus nests," or in the form of discrete, sessile, or pedunculated outgrowths (polypi). In the former case the mucous membrane exhibits a greyish-white appearance, the epithelium generally is swollen and œdematous, in parts incoherent and ragged, or altogether detached.

In the early stage of the disease the membrane sometimes presents a mammilated appearance. The mucous follicles stand out from the general surface unusually prominent, and are more or less engorged with their proper secretion, mingled with desquamated epithelium.

In the more advanced stage the mucous and submucous layers are thickened, the follicles are compressed and rendered obscure, or much tumefied and indurated, or even in some

instances ulcerated. The membrane may be tense and uniformly thickened or thrown into irregular, firm, prominent rugæ. Fissuring and ulceration are not unfrequently present in the latter form of the malady.

Isolated, sessile, and pedunculated growths appear either together or alone. They vary in size from a walnut to a cricket-ball. The larger ones are usually of the pedunculated variety. Both are of a pale yellow colour, generally smooth, sometimes plane, and sometimes lobulated. The surface presents a polished aspect, excepting where, as now and then occurs, ulceration and necrosis are present, when they exhibit an angry, ragged, and irregular appearance. In consistence they are yielding or even spongy, but tough. The cut surface presents fine fibrous intersections; it is yellow in colour, lumpy, close in texture, like a lymphatic sarcoma, from which, however, it is readily distinguishable, not only by the colour, but also by the lesser degree of vascularity, and other equally distinctive characters.

Difficulty of deglutition, convulsive coughing, and embarrassed respiration commonly accompany pedunculated growths in this situation, and as they are readily accessible and capable of being removed, either by torsion or excision, such cases offer a fair prospect of relief.

*Larynx.*

Actinomykosis of the larynx is, I believe, rarely met with, excepting in the form of extrinsic polypoid new formations, and they are common. These are usually found above the glottis or beneath the epiglottis, where the mucous membrane is loosely attached to the parts beneath; here they assume in consequence a pedunculated character. In appearance and physical properties they resemble those already described in connection with the pharynx.

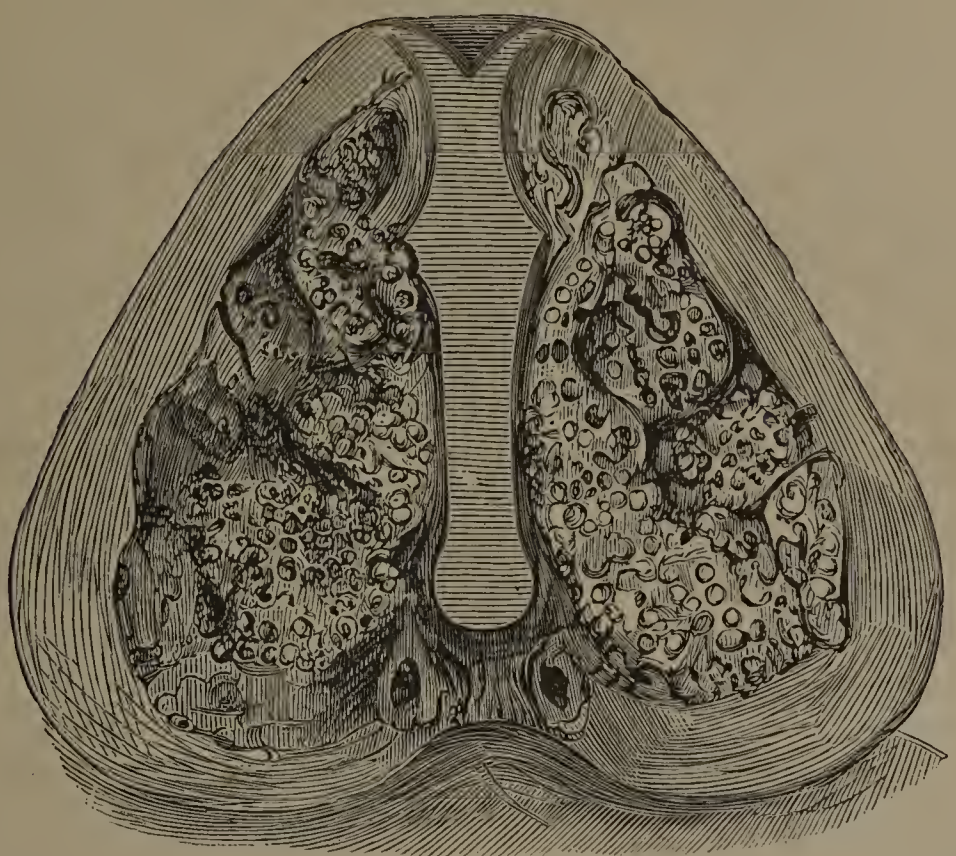
*Schneiderian membrane.*

As affecting the Schneiderian membrane actinomykosis, I believe, usually presents itself as the result of an extension of the malady, either from the lips, palate, or alveolar cavities. I have seen it frequently in association with the disease in each of these several parts, but never as an independent affection.

I am further guided to this opinion by the fact that in all cases which have come under my notice the disease, as it existed in the Schneiderian membrane, always extended in increasing severity towards one or other of the structures named. In a specimen recently forwarded me by Mr. Wilson, of Berkhampstead, the upper lip was extensively invaded with the fungus, so much so as to increase it in thickness to twice its usual size. On section it presented a closely-packed, dense mass of "fungus nests,"

invested by and held together with an irregular accumulation of connective-tissue new growth. From this point the endophytic nests extended in gradually decreasing amount along both nasal fossæ, the anterior portions of which were almost filled with the morbid growth. The ossa turbinata were irregularly thinned and in parts perforated by the presence of the fungous excrescences.

Woodcut 6.



Transverse section of face of ox anterior to first molar tooth, showing complete occlusion of nasal fossæ with few pus growths. Drawn from specimen kindly forwarded by Mr. Wilson, of Berkhampstead.

In structure and general appearance the growth, as it appears in the Schneiderian membrane, corresponds to that already described in connection with the tongue, pharynx, &c., and need not, therefore, be again referred to.

*Differential Characters.*

*Macroglossia*—or hypertrophy of the tongue—is distinguished from actinomykosis by the more frequent involvement of the anterior third of the tongue, by the absence of nodulation or contraction, by hypertrophy of the papillæ; histologically by the characteristic dilatation of the lymph channels and the consequent cavernous structure.

*Glossitis.*—Acute inflammation of the tongue is differentiated by the suddenness of its development, the rapidity of its course, and the more marked tendency to resolution.

*Cancer* displays earlier and more rapidly progressive infiltration and ulceration of the tissues, with little or no tendency to

repair and cicatrisation; granulations are profuse and sloughy, the neighbouring lymph glands are almost invariably involved in secondary new growth, and the papillæ develop into fibre-like excrescences.

*Tylosis* is distinguished by the exuberant growth of epithethelium and fusion of the papillæ, by the absence of material swelling, and induration.

*Gangrenous stomatitis.*—This disease, as affecting the tongue, is known by the suddenness of the attack, the acute and localised character of the inflammation, and the deep, rapid, and extensive necrosis of the tissues. There is also an absence of tubercular swellings and a tendency to early reparation on the removal of the slough.

*Tuberculosis.*—Tuberculosis of the tongue is extremely rare. When it exists the neighbouring lymphatic glands soon become involved in the disease, and undergo caseous degeneration. Generalisation of the malady is, I think, almost invariable sooner or later. The actinomyces is absent from the caseous necrosed tissue of the organ.

*Pharyngeal cellulitis.*—The acute and painful nature of this affection, as well as its tendency to suppurate and to form retro-pharyngeal abscess, distinguishes it from the malady under consideration.

*Croupous inflammation.*—Croupous inflammation is differentiated by the presence of false membranes and the absence of the fungus from the necrosed tissues.

### *Periosteum.*

Actinomykosis of the periosteum in connection with the bones of the face is a common form of the disease. I have never found it absent in any case where the ossific structures were involved, and from certain considerations it is probable that the latter are reached through the medium of the ramifications of the periosteal membrane. I have, however, frequently observed it to exist widely disseminated in the periosteal tissue without any perceptible disturbance of the ossific structure over which it was placed. By this and other facts of a similar character I am led to the conclusion that the pathological changes commence on or near to the surface, and are propagated centrewards; but what is the precise channel for the conveyance of the infection?—how, when, and where the endophyte originally enters the tissues we have yet to learn. In actinomykosis of the palatine membrane the periosteum of the maxillæ invariably shares in the diseased process. Sooner or later the same is found to be the case where the gums become invaded with the fungus, and in either instance should the animal

be allowed to live, the disease advances towards the bone, and ultimately invades it.

The early changes in the periosteal tissue consist in the development of miliary granulations disseminated through its structure, associated with slight vascular injection. The former are presented as grey, translucent, somewhat shiny looking indistinctly outlined granules. These, at first discrete, soon extend their peripheræ, and invading the intervening tissue, are brought closer together, or even coalesce to form irregular areas, which may again converge by extending their circumference until large tracts of the periosteal membrane or the whole of a particular region becomes involved in the new condition.

During this time the enlarging granulations gradually appear less and less translucent, and if still discrete they also become more circumscribed. With their growth close inspection also reveals in them one or more minute centres of opacity which indicate the seat of groups or clusters of the actinomyces. Later on the opaque areas enlarge partly by the growth of the fungus, partly also by the massing up or aggregation of cells into heaps around them, and the transitional alteration which they undergo in the process of necrobiosis. The ultimate pathological changes and general appearance of the membrane vary very considerably, depending upon the degree of infection which prevails in relation to the developmental state of the fungus. In high degrees of infection and advanced fungus growth the membrane becomes much swollen, roughly tuberous, soft, and of a greyish-white opaque appearance. Sometimes this is uniformly the case over a large tract of tissue; at others it is varied by strands or irregular areas of less altered membrane. In the more advanced stages caseous foci, with pus cavities and intercommunicating sinuses, are developed, and the membrane undergoes rapid disorganisation. These changes are usually complicated with more or less serious ossific structural alterations, varying from a superficial rarefaction to the coarsest expansion, or even extensive necrosis.

In less severe cases, where the vitality of the membrane is capable to resist the disentegrating tendency of the disorder, active growth of new tissue ensues in nodules and patches. This may either consist of fibroplastic cell growth in the form of fasciculated sarcoma, or a mixture of this with embryo-plastic elements, or a higher grade of tissue may result, after the fashion of a fibro-sarcoma, or a dense compact fibroma, or a fibro-cellular neoplasm, in all of which colonies of the actinomyces will be found in greater or less amount, surrounded by variously shaped fibroplasts, epithelioid, or other cell forms.

(*To be continued.*)

*Description of Plates* I *and* II, *illustrating Professor Axe's paper on "Actinomykosis Bovis."*

PLATE I.

Fig. 1.—Vertical section through the mucous membrane, submucous layer, and some muscular fasciculi of tongue.

*a*. Epithelium. *b*. Rete Malpighii hypertrophied. *c*. Inflammatory cell infiltration of papillary and submucous layers. *d d*. Large cell-mass, enclosing "actinomyces." *e*. Cavity from which cell-mass and fungus have fallen out during preparation. *f*. Fungus nodule or cell-mass in peripheral section. *g g*. Muscle bundles showing inflammatory cell infiltration. *h*. Disintegrated connective tissue.

Fig. 2.—Section of muscle of tongue near to fungus nodule.

*a*. Muscle fibres obliquely cut. *b*. Leucocytes. *c*. Swollen connective-tissue corpuscles. *d*. Mycelium. *e*. Spores.

PLATE II.

Fig. 1.—Section of tongue beneath submucous layer.

*a*. Peripheral section of fungus nodule showing caseous centre. *b b*. Large cell-masses with fungus in centre. *c*. Reticulated cavity from which cell-mass has fallen out. *d*. Compressed and atrophied muscle-fibres. *e*. Transverse section of muscle-fibre containing psorosperms. *f*. Disintegrated connective tissue.

Fig. 2.—Muscle-fibre containing psorosperm cut longitudinally.

Fig. 3.—Actinomyces.

*a*. Partially calcified. *b*. Transverse section. *c*. Oblique section. *d*. Mulberry appearance when viewed entire. *e*. Young actinomycetes *f*. Group encrusted with lime salts.

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# ON THE PRESENCE OF ŒSTRIDEAN AND MUSCIDEAN LARVÆ IN THE HUMAN BODY.

By Dr. Jacobs. (Translated, with Footnote References and Remarks, by Professor Cobbold, M.D., F.R.S.)

(*Continued from p.* 159.)

Concerning the rapid multiplication of dipterous larvæ within the human body, and their capability of causing death, we long ago appreciated the facts reported by M. Roulin, quoted by Kirby and by J. Cloquet. It is, moreover, a matter of observation that the larvæ of flies, which develop in the earth, but rather slowly, whatever be their mode of life in the adult state, acquire a rapid hatching when the larvæ are deposited in animal or vegetable matters in a state of decomposition. The flesh-fly (*Calliophora vomitoria*) by these conditions undergoes its metamorphoses in a dozen days. The *Sarcophaga carnaria*, Meig., the *Lucilia Cæsar*, L., the *Anthomyiæ*, are in the same case,

*Fig 1*

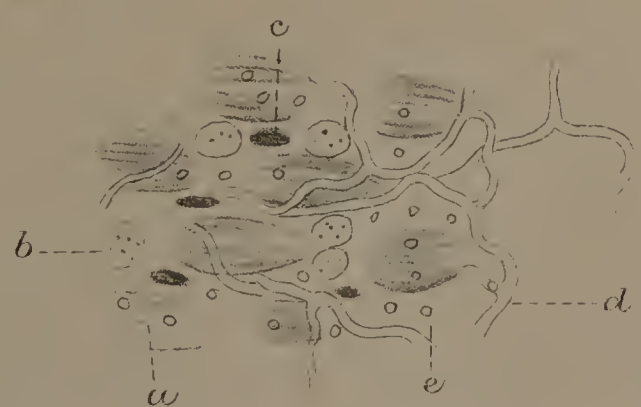



*Fig 2.*

Minterri Bros lith

*Fig 1.*

*Fig. 2.*

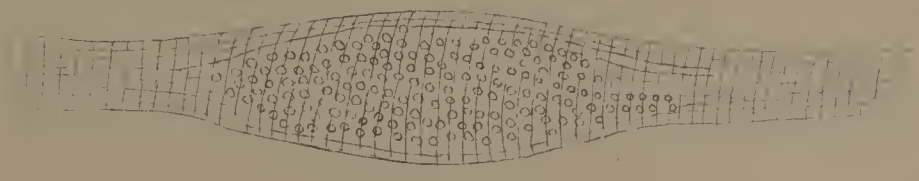
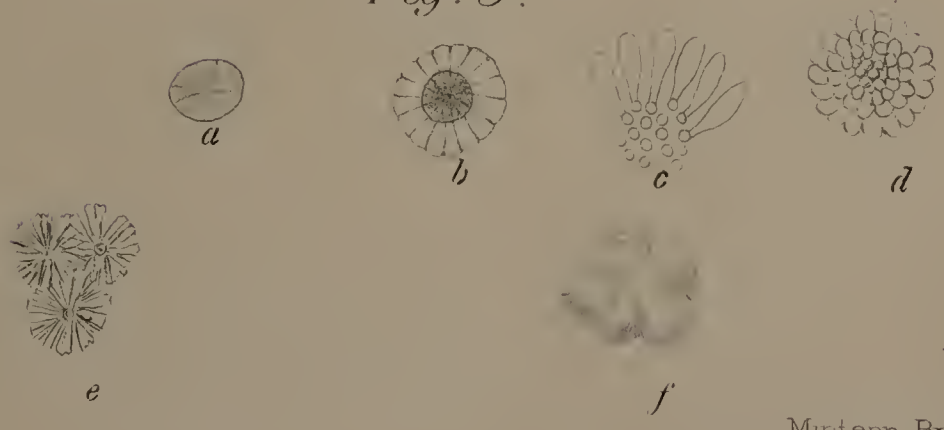


*Fig. 3.*




Mintern Bros lith

These insects, attracted by neglected wounds and ulcers, deposit their eggs, their presence in man under these conditions having been signalised for some time past. The larvæ of dipterous insects found on different parts of the body and in cavities, as the nostrils, &c., are liable to appear after sloughing, according to medical observations too long to enumerate. Of these, we have *Lucilia Cæsar*, *Sarcophaga carnaria*, *Calliophora vomitoria*, *Anthomyia pluvialis*, and *Sarcophaga Wohlfarti* allied to *Sarc. magnifica*, Meig., a species described by M. Portschinsky, who has observed in the Government of Mohilew an epidemic produced by this larva, which multiplies itself at the natural openings with incredible rapidity, both in man and animals.

Particular mention ought to be made of the *Lucilia hominivorax*, Coq., described by this entomologist in 1858. It was at Cayenne that Dr. Chapuis saw it develop with such rapidity that it attained its full size in twenty-four hours. Its attacks are frequent, death often following. Professor Laboulbène has reported deaths from the fifteen observations that he had collected. One indispensable condition to the attacks of this insect is neglect [of sanitation]. Soldiers submitted to hygienic conditions are never attacked. Cases of *myasis* occasioned by this insect have been described Coquerel, Saint Pair, and Moquin-Tandon. An excellent account of it has also been written by Dr. Weber (who was attached to the French expeditionary corps in Mexico), wherein he describes both the larva and the perfect insect.*

In 1872 Dr. Gori, Officer of Health to the Dutch Army, observed in a young man, twenty years of age, and the son of a European, at Paramaribo, an affection of the nasal fossæ, to which he thought it right to give the name of *rhinitis pseudo-parasitica*. He expelled the larvæ. The larvæ and the perfect insects were described by Dr. Heyläarts de Breda and by M. Vanderwulp. These larvæ belonged to the *Sarcophaga amata* (?), Wied., and to *Lucilia trifasciata*. It is the first time they were found in man. Some analogous facts have been related by Dr. Vanderwessen, Van Hasselt, and Van Frantzen, among the Dutch Indians. The insects have not been determined. In these countries this kind of parasite ought to be more frequent than in Europe.

These facts show that dipterous larvæ are able to multiply in the human body, but they are not parasites [properly belonging

* Some account of the ravages committed by *Lucilia*, with illustrations of the insect, is given in Janson's English edition of Louis Figuer's popular work ('The Insect World,' 1869, p. 71), and also in Van Beneden's 'Animal Parasites (1876, p. 120). In my review of this latter volume the subject has already been freely commented on (*The Veterinarian*, June, 1876). One of the best records is that given by Captain Bouyer (*Tour de Monde*, 1866, pr. Sem. p. 318).—T. S. C.

to or] of our species, and, as M. Moquin-Tandon has observed, the true parasites do not kill their host.* They manage to live in the host without compromising his existence, for the death of the host would involve that of the parasite. This would never arrive at the completion of its development, and the species would not be propagated.

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## ON PLANTS IN RELATION TO ANIMALS.

By Professor James Buckman, F.G.S., F.L.S., &c.

(*Continued from* p. 165.)

We complete our notes on the Umbellate plants with some remarks on those which produce aromatic or carminative fruits, usually called seeds; and as in all the fruits of this section there are found some peculiar organs called Vittæ, we must in the first place describe them, and the best description of them for our purpose will be found in Pereira's 'Materia Medica.'

"*Vittæ.*—These are not present in all umbelliferous fruits; they exist, however, in all the fruits now under consideration. In fact these fruits owe their aromatic and carminative qualities to the oils contained in these vittæ.

"*a.* In general the *vittæ* are found in the *channels* or *valleculæ*, and in some cases there is only one; in others there are more than one vitta in each channel. Sometimes there are vittæ also at the commissure.

"Ex.—*Univittate* channels (bivittate commissure); *caraway; fœniculum; anethum; cumin;* carrot.

"Ex.—*Multivittate* channels; *anise.*

"*b.* In some cases, however, the *vittæ* are not found in the channels, but in the commissure only.

"Ex.—*Coriander;* commissure bivittate.

"The contents of these vittæ is an *oleo-resinous juice.* It is usually deeply coloured. Probably primitively it is oil (volatile), which has become resinified by the air.

"*Volatile oil.*—When the fruits are submitted to distillation with water the volatile oil comes over with the water.

"The quantity obtained varies with the fruit and a variety of circumstances. In a general way we may say 4 or 5 per cent. is the amount.

"It is probable that in all cases there are two oils obtained from the fruit; one a pure *hydrocarbon*, the other an *oxyhydro-*

* This notion of Moquin-Tandon's is obviously a fallacy, true parasites being a very frequent cause of the death of their own proper hosts, especially of vertebrated animals.—T. S. C.

*carbon*. At least in a few cases, by redistilling the oil with caustic potash, we obtain a pure hydrocarbon.

"In the case of caraway oil this hydrocarbon (*carum*) has for its formula $C_{10}H_8$. In the case of cumin it (*cumen*) has a formula, $C_{18}H_{24}$.

"The *oxyhydro-carbonaceous* oil is probably an acid formed by the union of the *hydrocarbon* with atmospheric oxygen.

"A still higher oxidation probably furnishes a resin.

"The agency of the potash in the distillation is to fix the acid by combining with it; the non-acid or pure hydrocarbon then distils over.

"Dissolved in alcohol we obtain the so-called *spirit* (as of *caraway*, *anise*, &c.); besides the pharmaceutical preparations of this kind there are analogous ones sold by the spirit dealer under the name of *compounds* or *British liqueurs* (as aniseed, caraway, &c.). These are weaker than the pharmaceutical preparations and sweetened.

"Diffused through or slightly dissolved in water, these oils impregnate the water with their odour, and to a certain extent with their medicinal properties. *Caraway*, *dill*, *anise*, and other waters are examples.*"

It would appear, then, that most of the Umbelliferæ have fruits which possess a more or less strong flavour, but some of them are strong and disagreeable. The list, however, that we have now to pass in review is remarkable for presenting flavours of a spicy quality, each of which, though evidently warm and aromatic, is nevertheless so varied that it may be considered as specific.

The list of the plants which we shall have to refer to will be as follows:

1. *Carum carui* . . . . Common Caraway.
2. *Pimpinella anisum* . . Anise.
3. *Fœniculum vulgare* . . Common Fennel.
4. „ *dulce* . . . Sweet Fennel.
5. *Anethum graveolens* . . Common Dill.
6. *Cuminum cyminum* . . Cumin.
7. *Coriandrum sativum* . . Coriander.

1. The Caraway is well known through its seeds, which are widely used as a spice, affording as they do the interior to comfits, and also in the preparation of what, in our youth, we were so fond of in the shape of caraway cake.

The powdered seeds are a favourite ingredient in the horse-powders of the cow-leeech, as, indeed, are those of the anise, cumin, fennel, and coriander; but with regard to all of them, which we have known to enter into the composition of a "cleansing drench," it may be stated that as they come from the

* P. 1688–9.

drug mills they are very seldom genuine, for while some of the individual seed may find its way into the compound to give flavour, there is too much reason to suppose that different inferior meals, with "powder post" or rotten wood to give it the proper brown colour, which pertains to the genuine powder of all of them are used as diluents.

The genuine caraway powder, united with a little ginger, is no bad carminative, and by this action it would doubtless modify the action of stronger medicines, such as aloes.

The physician often prescribes the essential oil of these seeds to mitigate the nauseous, irritating, and griping effects of some nauseous medicines, and both a spirit and a water of caraway are employed as an aromatic and carminative remedy in flatulence and the like complaints, and we believe that both the spirit and the water are frequently used in Germany and France, the first as a dram, the second sweetened with sugar as a wholesome summer drink.

2. Aniseed is even more commonly employed in medicine than caraway, its flavour and action is much more powerful, and its essential oil more particularly so. In the human practice it has been always considered beneficial in coughs and colds; it enters into the composition of the old-fashioned "Paregoric Elixir," and Powell's Balsam of Aniseed is still a favourite medicine with the greater portion of the people.

It finds a place in Professor Tuson's 'Veterinary Pharmacopœia,' who describes its virtues as follows:

"Actions and Uses.—Stomachic, carminative, aromatic. Used internally in indigestion and flatulency, to mask the disagreeable flavour of medicines, and to diminish the nauseating and griping effects of purgatives.

"Doses.—*Horse,* ½ to 2 ounces; *Cattle,* 1 to 2 ounces; *sheep,* 2 to 3 drachms; *Pig,* 2 to 3 drachms; *Dog,* 20 grains to 1 drachm of the powdered seed.

"Modes of Application.—The powdered fruit is administered alone, or in conjunction with ginger or some other aromatic, in ale or in spirit and water.

"The volatile oil of anise, *oleum anisi,* is commonly added to masses as a flavouring ingredient, and is likewise employed to destroy pediculi on dogs and other small animals."*

The powder should form part of all warm and stimulative drenches, but the practitioner will do well to powder the genuine seeds, not only to ensure purity, but also to obtain the powder as fresh as possible.

3 and 4. Fennel is known to us by a plant frequently found about rubbish heaps and waste places, especially in the neigh-

* See pp. 36 and 37.

bourhood of towns and populous villages, having been undoubtedly introduced about the homestead on account of its many supposed virtues; and as it is besides used as a pot herb we have no difficulty in concluding how a plant which is so fecundate should have spread.

The fennel (*Fœniculum vulgare*) is a tall plant with large but much divided leaves, and *F. dulce*, a smaller form in all its parts.

Most botanists concur in the opinion that these are but varieties, but at the same time it is found that the first is stronger and much more active than the second, and hence the former is usually employed by the farrier and the latter by the herbalists.

Both plants are highly flavoured in all their parts, and the seeds of both are made to yield an essential oil.

Both the powdered seed and the oil are used in the treatment of cattle much in the same way as the anise, but it should be stated that it does not find a place in the Pharmacopœia from which we have just quoted.

It finds a place in every garden of any note, as it is used as a sauce for fish, especially mackerel, and it was formerly highly esteemed as a wholesome pot-herb; indeed, fennel once stood so high in general estimation that we cannot resist quoting the following folk-lore in reference to it.

To some the scent and taste of fennel is anything but agreeable, though its elegant graceful form must be admired by all.

The bright golden-yellow flowers are produced in July and August, while its delicate feathery leaves appear earlier. According to the old English ballad—

> "Merie it is in time of June,
> When fenil hangith abrode in toun."

It has been cultivated from very early times, and was used with St. John's wort and other herbs to hang over doors at midsummer time, to prevent witchcraft and other evil influences.

In the south of France it is usual, in addition to placing it over doors, to strew it around the bed and to lay it under the pillow, especially on the eve of St. John. As a sauce or garnish to fish it was likewise much consumed by our forefathers, and during Lent was never absent. Large quantities of fennel seeds (the fruit) are imported into this country; and although it has lost some of its ancient reputation it is still retained in the British Pharmacopœia as a carminative.

It resembles aniseed in its properties, and is given to relieve flatulence in children, and as a vehicle for other medicines. Its ancient reputation was of a much more ambitious kind; it is recommended by Pliny to strengthen the eyesight, and he says that when serpents cast their skins they eat this plant and swallow

the juice to restore their sight. Gerarde, as usual, is full of cures to be performed by the use of this herb. He recommends it to nursing mothers, and attributes to the boiled roots virtues "equal to anise seed, and good for the liver and lungs." He says: "The pouder of the seed of fennell, drunke for certaine days together fasting, preserveth the eyesight, whereof was written this distichon following:

"Fœniculum, Rosa, Vervena, Cheloidina, Ruta,
Ex his fit aqua quæ lumina reddit acuta."

" which, being translated:

"Of fennell, roses, varvain, rue and celandine,
Is made a water good to cheere the sight of eine."

In a curious old rhyming herbal, preserved at Stockholm, the following are some of the virtues ascribed to the fennel:

"Fenel is herbe precyous—
Good is his seed, so is his rote:
And to many teings bote
Ye sede is good, fastende to ete,
And eke in drage after mete."

Much more of this curious rhyming on the virtues of the fennel we might quote, but we forbear. Pomet, in his 'History of Druggs,' assures us that confectioners "take clusters of the green fennel, which, when covered with sugar, they sell to make the breath sweet, for the green is reckoned to be of the greatest virtue, while the seed," he adds, "is laid between olives, in order to give the oil a fine taste."

The Arabs of the present day use the leaves for giving a flavour to their food. In Italy and Spain they are added to various beverages, and considered wholesome and agreeable.

The ancients believed that its constant presence in their food not only imparted bodily health and longevity, but gave strength and courage to those who partook of it, an idea which has been embellished by Longfellow, who deduces from it a moral:

"The goblet wrought with curious art,
Is filled with waters that upstart
From the deep fountains of the heart,
By strong convulsions rent apart,
And running all to waste.

"I pledge you in this cup of grief,
Where floats the fennel's bitter leaf;
The battle of our life is brief;
The alarm—the struggle—the relief—
Then sleep we side by side."

We have only quoted portions of the above poems, as they would be too long in their entirety; but this will be sufficient to show the repute in which the fennel was formerly held by doctors and the people at large.

5. The common Dill is a foreign species, which has attained considerable note. The older physicians, such as Hippocrates, Dioscorides, and Pliny, all speak of it, and it is mentioned in the Scriptures.*

It was formerly used in this country as a wholesome herb, as well as in the form of dill-water, which is made from the seeds; it found its way into the still-room of most notable housewives.

Dr. Pereira speaks of it as follows:

"PHYSIOLOGICAL EFFECTS.—Aromatic, stimulant, carminative, and condimentary, analogous to other aromatic umbelliferous fruits.

"*Uses.*—Employed as a condiment by the Cossacks. Loudon says the leaves 'are used to heighten the relish of some vegetable pickles, particularly cucumbers, and also occasionally in soups and pickles.'†

"In medicine it is principally employed in diseases of children. It is a common domestic remedy among nurses to relieve flatulence and griping of infants. Occasionally it is taken under the idea of promoting the secretion of milk. Practitioners generally use dill as a vehicle for the exhibition of purgative and other medicines to children, the griping of which it assists in preventing. The whole fruits may be given to adults in doses of 10 grains to 1 drachm."‡

"The seeds, which are the only officinal parts of the plant, contain the whole of its properties, and are much superior to the leaves, root, or any other part. They have a moderately warm, pungent taste, and a peculiar aromatic odour; their whole virtues appear to reside in an essential oil, which they yield in considerable quantity by distillation. Water very imperfectly extracts their virtues; spirit is the best menstruum.

"A few drops of the essential oil will generally answer every purpose you may wish from the seeds, and the distilled water (which is only a solution of the oil) is a very useful vehicle in rendering medicines more palatable, and at the same time possesses slightly stimulating properties. The seeds are stomachic and carminative, and are given in the flatulent colic of children, dyspepsia, &c.; but they are chiefly employed as an adjunct to other medicines. Dose, from grs. x to ʒj."§

6. Cumin is also a foreign species, common to Upper Egypt and Ethiopia. Our supplies, principally of the seed, come from Sicily and Malta, where it is extensively cultivated. It is nearly allied to the caraway in its properties, though, perhaps, not so agreeable.

It is used, like other stimulating seeds of the order, in powders or drenches for cattle. In the human school we find it is rarely used, except in the form of plaster or cataplasm (*emplastrum cumini*, Ph. L.; *cataplasma e cymino*, Quincey).

* See Matthew, chap. xxiii, v. 23.
† 'Encyclopædia of Gardening.'
‡ Page 1696.
§ 'Medical Botany,' vol. i, p. 130.

7. Coriander is found about Ipswich and parts of Essex, doubtless derived from former cultivation. Its character is much that of the caraway. Mrs. Lankester speaks of it as follows:

"The fruit of the coriander is the only part of the plant that seems to have any medical or dietetical reputation.

"As an aromatic stimulant it has been used from very ancient times. It was employed by Hippocrates and other Greek physicians, and allusion is made to it in the book of Exodus, where Moses compares the manna supplied to the Israelites to 'a coriander seed.' When dried the disagreeable scent and taste of the seed disappear, and it becomes a somewhat pleasant addition to confectionery. In the northern countries of Europe the seeds are sometimes mixed with bread, but the chief consumption of coriander seed in this country is in flavouring certain alcoholic liquors, for which purpose it is largely grown in Essex. In medicine it is now little used, excepting to disguise other flavours.

"It is an ingredient in the confection of senna, and enters into the composition of currie-powder. The inhabitants of Peru are so fond of the taste and smell of this herb that they put it into almost all their dishes in such quantities as to render the odour insupportable, and the taste as objectionable, to any but a native."

The nauseous odour of the bruised plant is very remarkable, but this is even intensified in the green seeds, which we can only compare to the smell emitted from a crushed bug, and yet when dried these same seeds are very agreeable, so much so as to be an addition to the flavour of sugar, by which the enclosed seeds are formed into comfits or sugar-plums.

Our notes on this order must now be closed. We have found the different sections of the plants mentioned to possess great and varied interest; and, though they are certainly not so highly esteemed as they once were, we cannot help thinking that medical science has not benefited by this result.

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## UNSOUNDNESS.

### A Communication from Professor WALLEY.

In the report of the discussion on "Unsoundness" which took place at the last meeting of the Midland Association, I observe a statement made by the president to the effect "that Professor Walley was of opinion that grunting was not unsoundness." I am afraid Mr. Russell did not accurately gather the sense of my remarks on this subject. The statement I made being, that a "grunter" was not necessarily a roarer, or *vice versâ*, and in one sense, therefore, grunting was not unsoundness; but that it was always a suspicious sign, and in my experience "a

grunter" was in a degree removed from a roarer. I illustrated the former part of the assertion by two cases—(1) a thoroughbred entire horse "Tester," the property of Mr. Kettle, which, when I was a pupil with that gentleman, I occasionally rode. This horse would grunt loudly if suddenly struck, or if the heels were sharply dug into his sides, but I could never get a sound out of him in cantering or galloping.

(2) A brown, bony horse, valued at £100, which I had examined a few months prior to the date of the Midland meeting, grunted loudly when struck on the ribs, but in subjecting him to very severe tests I could not detect the slightest abnormality in the respiratory sounds. In order to prevent any misconception on this point, I adhibit an excerpt from my lectures on the subject of grunting.

"A grunter is not necessarily a roarer, and many horses—as many more also for that matter—will emit a very pronounced involuntary grunt when ribbed, and the bigger the horse the more likely he is to do so; equally will many horses grunt when struck with the spur or heel in riding, or at the drop in leaping—frequently it is only an expression of fear; grunting, however, is always suspicious, "a grunter" being very frequently only a degree removed from a roarer, and, in my experience, time only is required to convert the one into the other. Grunting without roaring is not indicative of laryngeal, but of cardiac or pulmonic defects, or of a pneumogastric neurosis.

"If a horse grunts to the whip, cough him, put him to severe exertion, and carefully examine his pulse and heart; if the cough is normal in character, if no abnormal respiratory sound is emitted, if the animal shows no distress, and the pulse beats and heart sounds are normal, you may—while accepting no responsibility yourselves—advise purchase with a special warranty for a few months, or at a reduced figure."

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## PNEUMO-ENTERIC FEVER OR "PINK-EYE."

By Charles Gresswell, M.R.C.V.S., Nottingham.

A few observations on the epizootic disease commonly called "Pink Eye," to which, however, the designation "Pneumo-Enteric Fever" may perhaps more fitly be applied, will probably be considered appropriate and interesting at a time when the prevalence of the disease in Nottingham and other districts has lately been a noticeable phenomenon.

Isolated cases of this disease have, it is true, been seen here from time to time during the last eighteen months, but it was

not until December, 1882, that any serious proportions were assumed. During the middle of that month some Russian ponies, which had recently arrived in the town, were found to be affected, and one or more died. From these, as a centre, the disease spread, at first manifesting itself amongst the horses occupying the other stables of the publichouse yard in which the ponies had been quartered. The propagation of the disease from this yard to places two and three miles distant I have been able most distinctly to trace. As an instance, I may mention the case of an owner of three horses employed to lead manure from the yard, one of his horses being visibly affected four days after exposure to the infection, another on the fifth day.

It may be mentioned that in the majority of cases which I have atttended direct contact with other affected horses could be proved, and that the first outward symptoms were invariably manifested on the fourth or fifth day subsequently to that on which this contact was known to have occurred. From the fact that in many instances where the existence of the disease was discovered, the temperature was observed to be elevated to 101° or 102° on the third day, it may be inferred that the period of incubation is to be considered as extending over three or four days. On the fifth day after contact, which may be called the second day of the disease, there may be observed a temperature of 103° to 104°, a pulse varying between 60 and 70, general dulness, irregular, shambling gait, injected mucous membranes, and tumefaction of eyelids, more or less pronounced in character. The appetite may or may not be markedly impaired. On the third day of the disease the symptoms are greatly exaggerated; the temperature may be as high as 105°, or even 106·5°, the pulse 70 to 80, small, and in many cases scarcely perceptible, the mucous membranes purple or red. There is a discharge from the eyes, and frequently an opacity of the cornea is perceptible. Finally, accelerated respirations and total anorexia are to be noted. Extending from the third to the sixth day of the disease, more special symptoms, indicating in all probability extensive exudation into special tissues and organs, may be recorded. Amongst these, serious pneumonic symptoms implicating large portions of one or both lungs (in some cases associated with pleuritic complications); enteric symptoms, including abdominal pain; intermittent action of the heart; extreme nausea; partial, or in rare cases total, loss of power in the hind quarters; violent diarrhœa; finally, though rarely, cerebral symptoms are most prominent, whilst death from asphyxia or collapse occurs. It is not, however, to be understood that the above characters are co-existent in all or even the majority of patients; it seems that, as a general rule, the exudation takes

place in sets of organs or tissues which may be considered to exhibit a co-ordination or similarity of functions, and where recourse is had to scientific treatment in the earliest stages, it may most emphatically be asserted that the onward course of the disease may be arrested, the severe symptoms prevented, and a more or less complete cure the favorable result.

A *post-mortem* examination invariably displays a characteristic congestion of the lungs, heart, or stomach. One or both lungs may be thus congested, and, as a rule, hypertrophy of the heart is visible. In all the other parts affected there is an exudation of lymph, which is frequently especially marked in the submucous tissue along the whole course of the intestinal tract, between the folds of the peritoneum, and also in the brain and spinal cord.

Thus the name of pneumo-enteric fever has appeared to me to be an appropriate one, and I may be allowed to record my conviction that the disease is to be regarded as depending upon the presence in the blood of a specific virus, which produces in the first instance pyrexia; secondly, congestion of the heart, lungs, and stomach; and, finally, extensive infiltration, *i. e.* exudation of the fluid portions of the blood into the most important organs of the body.

Horses in low condition, or otherwise debilitated, seem to be principally and most markedly affected; the disease when appearing in strong horses usually assumes a very mild form; the percentage of deaths is very small, only resulting in cases aggravated either by neglect, by being worked in the first stages, by bad treatment, by imperfect sanitation, or by a previously low condition of the animal due to other causes. Patients which have been treated at an early stage, and have had the advantage of good sanitary conditions and a previously fair state of health, will very rarely succumb; the per centage of fatal cases should in such instances be very small.

In the most favorable cases the temperature usually falls on the fifth day to about 103°, on the sixth to about 101°, being normal on the seventh. The gradual fall of the pulse is in about the same proportion. In less favorable cases the temperature will remain at about 105° for several days; finally, however, undergoing a rapid fall, with an almost equally sudden cessation of other symptoms. Where a fatal result is to ensue the heart's action and the functions of respiration become gradually more markedly impaired until the animal dies in asphyxia at about the seventh day. Sometimes, though rarely, death from collapse at about the fourth day has occurred.

In conclusion, I must state my conviction to be, that this disease is entirely different from influenza; that it is in fact a specific fever with well-marked periods, and dependent upon

the existence of a germ of a specific and contagious nature. The fixed period of incubation, the gradual rise of temperature, followed, as a rule, by a similar gradual fall, the great severity of the general febrile symptoms, the characteristic exudations and congestions, with the total absence of inflammatory action, the probable dependence upon being microzymes, its highly infectious nature, together with its other symptoms, most distinctly differentiate pneumo-enteric fever from influenza proper.

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## OBSERVATIONS ON TETANUS.

By Edward Geo. Johnson, M.R.C.V.S., Beighton, near Sheffield.

Two cases of the above disease having occurred in my practice recently, and well knowing how interesting any data in connection with so important a subject is to scientific men, and, indeed, the whole community, I subjoin a brief *résumé* of each case, trusting you will consider the matter sufficiently interesting to give it a place in your valuable Journal.

Case 1.—A valuable grey colt rising five years old. When called in to attend the animal I diagnosed the case at once as being tetanus, and upon closely questioning the owner, who is a farmer, I ascertained that the operation of "docking the tail" had been performed some three weeks previously by a person professing to be a "castrator," who paid a flying visit to the neighbourhood, and operated on a number of animals in a similar manner, but let us hope more successfully, doing each for a ridiculously small charge. I presume that it would be the cheapness which induced the owner in question to allow him to operate, which he did, evidently adopting the so-called "searing" or burning process. The owner could not credit that so direful consequences could possibly accrue from the lesion pointed out. So bad was the animal, too, that upon my informing him as to the nature of the case, he thought he would have the animal destroyed. I felt interested in the case, and desired to experimentalise and endeavour if possible to elicit anything of importance therefrom. I easily persuaded him to allow me to treat it. There were all the usual signs of tetanus in a severe form, of course more particularly demonstrated when the animal was frightened or excited. The lesion at the end of the tail was in a most unhealthy condition, presenting a large fungoid, granulating surface, with a bad odour. I at once carefully amputated this, taking away with it about two of the coccygeal bones. I succeeded also in administering a purgative.

During five weeks subsequently the animal was kept perfectly quiet, and for the early part of the time lived by suction of food out of a bucket, in which was placed frequently doses of hydrocyanic acid, as much as four-ounce doses, belladonna extract, &c., the latter being also given in the form of an electuary. During this time the case passed through the various stages until the animal ultimately recovered. He has since been sold, and is working well.

Case 2.—A valuable filly. The owner had some three weeks prior "docked" her tail with his penknife. My assistant at once amputated the unhealthy parts, and the case was subsequently treated by Mr. James Cooke, M.R.C.V.S., who is managing a branch of my practice. After similar treatment for several weeks to that which had been adopted in the other case the animal recovered.

My reason for reporting these two cases is certainly not because I think there is anything remarkable about them, but rather, if possible, to deduce something from them of value to us in reference to this dreadful malady. Now, in my opinion the points of interest in both these cases are:

1. The common tendency of tetanus to follow upon the operation of docking.

2. The value of amputating the diseased end of the tail, and the bearing which such a *modus operandi* has upon the pathology of the disease and its treatment.

The fact that tetanus may accrue as an untoward result of "docking" is of course well known. But that it so commonly occurs is a matter worth our inquiry, seeing that, in spite of efforts made to suppress the almost universal practice of performing the operation, really nine tenths of the horses which one sees have been "docked." This latter fact is sufficient evidence that the operation as a rule is successful, and that the untoward result is decidedly the exception. In both the cases I have alluded to the animals were young, and in case 1 I know the colt was unwell at the time it was operated upon; and in case 2 would be changing its teeth, and probably unwell also; but anyhow no notice of the condition of the animals was taken in either case.

It is to this point that I attach much importance. I consider it is our duty to ascertain the state of an animal's health prior to operating. Next, we may notice how the operation was performed. Of the ignorance and incapability of the operators I feel convinced. In case 2, in particular, was this manifest; for upon being told it was so-called "lock-jaw," the operator availed himself of an early opportunity to assist our treatment by an ingenious and unique method of his own, which consisted in

"oiling" the animal all over in order, as he suggested, to loosen its muscles.

This indicates that owners should always procure the services of a proper person—viz. the veterinary surgeon—if he is determined to have his animal so operated upon. I am of opinion that we should not refuse to perform this operation, however we may object upon principle to needless operations; *firstly*, for the animal's sake; *secondly*, for the owner's; and *thirdly*, for our own. I think, too, that with ordinary care the results, as far as we are concerned, are satisfactory. We should always satisfy ourselves as to the animal's health. If all right, administer a dose of physic and subsequently operate. With regard to the operation I must say I entirely disagree with the use of the "actual cautery." I have operated upon many animals and I never had one go amiss. I always remove the required portion in the usual way, and immediately apply a pad of carbolised cotton wool to the cut surface, then tie a piece of whip-cord as a ligature (not too tight) above, bringing the ends down below the pad, around which I have previously arranged the hair, and there tying it tightly to keep the wool in its place. I cut the ligature the next morning; I have never had cause to be alarmed at the hæmorrhage. This process is very simple, and less painful to the animal.

In regard to the second point of interest, to which I have previously alluded, and which has really a scientific importance, is the value of amputating the diseased end of the tail. I do not suggest that there is the slightest originality about it. On the contrary, I presume it is a general *modus procedendi*. But I contend that its value is great. Its bearing upon the pathology of the disease is, in my opinion, important from the fact that we see plainly demonstrated in these two cases, that when the cause or irritating source of the peculiar effect upon the nerve-centres which is manifested in tetanus is removed, the disease becomes amenable to treatment. In the *post-mortem* house the pathologist and morbid anatomist labour to find special lesions, changes in nerve-centres, or other indications which will explain the mysteries of this awful malady. In the meantime I think that these two cases, with a mass of others which I have no doubt my professional brethren could recount, clearly demonstrate that even when traumatic tetanus is established as far as the brain, spinal-cord, and all nerve-centres are concerned, the disease is amenable to treatment if we can disconnect them from the wound which constitutes the cause, source, point of irritation or battery, so to speak, which has the power of flashing its peculiar and deadly force or influence along the telegraphic system of nerves throughout the body. I consider that it is to this disconnection we should give our attention in the treatment

of the disease; for if it be true that when we are able to do this the disease yields to treatment, it is clear that the affections of the nerve-centres, &c., are of minor importance.

In the human subject, I presume, it is orthodox practice to destroy the communication (nervous) with the parts wounded. I remember having heard of a case of a young man having cut his hand. Tetanus supervened, and his case was looked upon as hopeless. He was taken to, I believe, St. Thomas's Hospital, where an operation was performed; I understood that either a piece of the communicating nerve was taken out, or else that the process of stretching was adopted, and he was cured.

As far as removing the diseased end of the tail has reference to treatment of our cases, I consider it is important as showing that we should try "disconnection" in our patients. Of course we cannot amputate limbs, but could we not—say in cases of injury to the "foot," by far the commonest form—perform "neurotomy," and thus "disconnect" the parts. In other parts, if we could not divide the nerve, it might be possible to excise the parts; at least, in my opinion we should make every effort to destroy the nerve-ends, or by some means destroy the sensation in the parts. Any member in our profession who may have a case of traumatic tetanus occurring as a result of a wound in the foot, might try "neurotomy," and report the result of the experiment. Such information I venture to suggest would be interesting and valuable.

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## NATIONAL VETERINARY ASSOCIATION.

Dear Sirs,—Will you kindly permit us to announce through the medium of your journal that the first meeting of the National Veterinary Association will be held on Tuesday, the 8th of May, next (the day following the annual meeting of the Royal College of Veterinary Surgeons), in the Lecture Room of the Society of Arts, John Street, Adelphi, Strand, W.C.? It is proposed that the business of the sittings be arranged as follows:

(*a*) To adopt rules for the future guidance of the Association.

(*b*) To elect officers, and appoint time and place of next meeting.

(*c*) To receive the President's address.

(*d*) To debate on the *major subjects*.

1. Professor Robertson will open the discussion on Professor Walley's paper on the "Contagious Diseases (Animals) Act."

2. Mr. Fleming will open the discussion on Mr. J. H. Cox's

paper on "Tuberculosis in the Lower Animals and its Communicability to the Human Subject."

(*e*) *Minor subjects* to be submitted in the form of questions for the meeting to vote for or against.

It is hoped that gentlemen wishing to introduce a *minor subject* will kindly forward the same in form of a question to either of the secretaries before April 10th.

The secretaries will also be glad if those who wish to join the Association and attend the May meeting will be good enough to send in their names and subscriptions as early as possible, in order that the necessary provisions may be made. They also wish to forward a printed copy of each of the *major* subjects for discussion to the members at least a fortnight before the meeting, so that the subjects be taken as read, and the debate opened at once, and thus economise the time of the sittings.

Yours faithfully,

GEO. A. BANHAM,
Downing Street, Cambridge,
JOHN PENBERTHY,
Royal Veterinary College.
} *Hon. Secs.*

*To the Editors of the 'Veterinarian.'*

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## ROYAL AGRICULTURAL SOCIETY'S PRIZES.

### Letter from Mr. ALFRED H. ARCHER.

GENTLEMEN,—Being a competitor this year for the prizes offered by the Royal Agricultural Society, I feel it my duty to make a few remarks respecting the report issued by the Examiners at that competition, as it contains an expression of sorrow at the ignorance displayed by the candidates concerning the subject of grasses and their influence in producing disease in cattle.

During the whole examination only *one* question was asked that in any way referred to the subject, and that, as I understood it, amounted to this, "What grasses act as a direct poison to cattle when partaken of by them," my answer being, I know of none that do unless they (the grasses) are diseased; if I failed to comprehend the meaning the question was intended to convey, I shall be happy to receive correction. It appears, however, some grasses growing abroad do possess this property, but the word "foreign" was omitted both in the examination and report, consequently readers are misled, naturally supposing it

refers to those of British growth, few thinking, even candidates for these prizes, that they are expected to be acquainted with Indian or African botany, and in one or both countries such deleterious grasses are found, I believe.

This report, being published also in the leading agricultural papers, apparently casts a somewhat unfavorable reflection upon the profession, because it can hardly be presumed that competitors in this examination have less knowledge of this subject than the majority of their professional brethren, and I regret stock-owners should be led to infer that in this country grasses produce illness or death of their stock, whilst Veterinary Surgeons who attend them are ignorant of the cause.

Apologising for thus trespassing on your space,

Yours sincerely,

*To the Editors of the 'Veterinarian.'*

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## EXISTING PRACTITIONERS.

### A Reply to "M.R.C.V.S."

My letter in the December issue of the *Veterinarian* seems to be taken by "M.R.C.V.S." as an undue criticism on the Members of the Royal College of Veterinary Surgeons, for he states, to suppose that they would wilfully traduce the character of the existing practitioners is mere nonsense, and he doubts whether any solitary instance of unfairness could be detected in any one member of the profession.

I can assure him, if I had only the pleasure of his acquaintance, I would not only remove his doubt about one solitary instance, but would show him many more. He also states that many of the old farriers harbour a dogged antagonism to the qualified man.

Speaking for myself, and what I know of the minds of other non-qualified men, quite the reverse is the case; and I further refer him to chapter and verse in my first letter on this point, which he has not attempted to refute. It would have given me much pleasure to have seen pointed out by him where the respectable, painstaking, successful non-qualified man has been recognised; whether at any lecture, veterinary association, or any other meeting; but without this I must still assert we are all written down as charlatans.

But my object in writing my first letter was more particularly intended to call attention to the attempted straining of the

Veterinary Surgeons Act. Now, I would ask Mr. Diploma if he can read in the Act, or even between the lines, where mention is made that all the qualified men should have a list of all applicants for registration sent, requesting them to object to any name they may think proper; or that the day-books and ledgers should be produced, as passed at the Leeds Veterinary Association; or that each successful applicant must be making his living only by his practice, as passed at the North of England Veterinary Association. Such attempts as these I can only say are intended to procrastinate, thwart, and render inoperative the plain meaning of the Act.

In conclusion, I trust that the Royal College of Veterinary Surgeons will administer the Act in a generous spirit; by so doing it will have a tendency to heal and smooth over any difference which may exist between the qualified and non-qualified man, and so harmonise their minds to assist each other to battle with disease, relieve suffering, and preserve life as much as possible among the sick animals committed to their care.

## Pathological Contributions.

### CATTLE PLAGUE.

This disease still continues to prevail in several Provinces of Russia, and has recently appeared in the Austro-Hungarian Empire in the Province of Carniola, on the borders of Italy.

The cattle plague still prevails at Smyrna, and horses and cattle coming from thence are subjected to nine days quaratine in the Greek Ports of the Piræus, Syra, Corfu, and Santorni.

### PLEURO-PNEUMONIA.

In consequence of this disease having recently occurred in Spain, importation from that country of cattle into France has been prohibited.

### FOOT-AND-MOUTH DISEASE.

This disease is very prevalent in Switzerland, and is reported to exist in seventeen cantons.

It also exists in Germany, and is very rife in the Northern parts of France.

# THE VETERINARIAN, APRIL, 2, 1883.

Ne quid falsi dicere audeat, ne quid veri non audeat.—CICERO.

## INOCULATION FOR PLEURO-PNEUMONIA.

A LARGE number of scientists in Europe have committed themselves to the exposition of a theory which may ultimately be proved to have a substantial basis, but which is at present in a somewhat misty condition.

It is impossible to glance at any of the continental veterinary journals without becoming impressed with the conviction that there exists a strong faith in the doctrine that disease—or at least specific or transmissible disease—depends on a "*material*" which is capable of cultivation and conversion into a veritable *vaccin*, that is, a modified form of the virus, which, on being introduced into the system of a susceptible subject, causes a mild attack of the affection, and confers on the animal an immunity against the natural disorder. The microbe of chicken cholera and that of anthrax, when cultivated under the influence of oxygen, lose their virulence and no longer destroy the organism which they infect, while at the same time the modified disease which they cause confers the same amount of protection against the natural disease as that which is enjoyed by the animal which has recovered from a severe attack.

It may be questioned whether the system of preventing a severe attack of any malady by inducing a mild form of the same disorder is one which can be claimed to be based on scientific principles. Indeed, it may be admitted that a rational method of prevention would aim rather at the destruction of the infective matter than at its cultivation; but at present very little has been done in that direction, and we must be content therefore to record from time to time the advances which have been made in the preparation and use of the different forms of "*vaccin*."

Experiments in inoculation with the virus of pleuro-peumonia have been carried on in various parts of the world for more than thirty years with various results; but one fact only has been clearly established, viz. the impossibility of inducing the veritable disease by introducing into the system of a healthy animal the fluid from diseased lungs. Local changes in the inoculated part are, in most cases, developed, and sometimes septicæmia occurs, and terminates the animal's life; but no operator in the present day ever thinks of producing lung disease by the

employment of the virus from diseased lungs, but rather relies on the induction of a modified form of the disorder in which the lungs have no share.

It is satisfactory to observe that the subject of inoculation as a preventive of pleuro-pneumonia is likely to assume a more definite shape than it has hitherto possessed. A commission has been appointed in France to investigate the matter, and the distinguished *savant,* M. Pasteur, has also made some experiments.

One point which M. Pasteur brings prominently forward seems to have escaped notice, viz. the entire absence of any precaution in collecting and keeping the fluid so as to prevent the entrance of septic germs, which he asserts destroy the special properties of the virus and accounts for the fatal results which follow inoculation in a certain, sometimes considerable, proportion of cases. He also notes that there is no uniform method of operating, an essential element in the carrying out of a scheme which is to secure uniform results.

It is rather a curious phase in the history of inoculation for pleuro-pneumonia that after some thirty years' experience we are only now beginning to understand that experiments have been conducted on a haphazard principle, or rather on no principle at all. Probably this accounts in some measure for the fact that in those parts of the Continent where inoculation is most popular pleuro-pneumonia is most rife. Belgium, and some districts in Germany, for example.

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## ESTABLISHMENT OF PRACTICAL VETERINARY SCHOOLS IN FRANCE.

At the meeting of the Société Centrale on February 8th, 1883, the following discussion took place in reference to the practical study of diseases of farm animals other than the horse :

"*M. Weber* said an interesting question, from a professional piont of view, has been raised at one of the meetings of the Second Section of the Society of Agriculture of France. Certain agriculturists, considering that the instruction which is given to the French Veterinary School concerning the maladies of cattle, sheep, and swine is almost exclusively of a theoretical character, have asked that a school may be established where the diseases of these animals may be studied in a practical manner. Others have gone further; they have demanded the establishment of a species of empirical diplomas in certain departments of the practical schools established to train veterinary practitioners.

"I should not have troubled you with these details if it had

not been stated that this question was being considered by the Minister, and if it had not been further stated that one of the officers of the Minister of Agriculture had declared that a decision would shortly be arrived at.

"*M. Bouley.*—I can assure M. Weber that the *creations* of which he has spoken in that section of the Society of French Agriculturists, to which he belongs, have nothing to do with the Minister of Agriculture.

"It is very possible that this may be the wish of some agriculturists, to whom it would be very convenient to have in every commune a man on their side in the *rôle* of an empiric practitioner. But the realisation of this desire is far off. And we may be assured that it is not the Administration of Agriculture which has done so much to endow our veterinary schools with the means of theoretical and practical instruction which would wish to institute by the side of these, empiric schools.

"*M. Sanson* did not think it worth while to occupy themselves beforehand with questions of this nature that the agriculturists might make. Personally, if he was still practising the veterinary profession, he would fear less the opposition of the proposed empiric schools, of which the creation is demanded, than that of a veterinary surgeon coming from our present schools. The importance of the reply that an officer of the Minister might make when consulted by agriculturists must not be exaggerated. These kind of replies constituted what might be called empty promises."

It would seem that it is not only in England that the want of means for the practical study of diseases of animals of the farm is felt.

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## ANNOUNCEMENT—EXPOSITION PUBLIQUE ORNITHOLOGIQUE A VIENNE.

Arrangée par la Société Ornithologique étant sous la protection de son altesse le prince impérial royal archiduc RODOLPHE depuis le 7 jusqu' au 15 avril 1883, dans la salle de l'impériale royale Gartenbaugesellschaft, I. Parkring 12.

WE have been requested by the Secretary of the above-named society, Dr. Gustave de Hayek, to inform our readers that the second exhibition of birds, and everything relating to the keeping and management of birds, will take place in Vienna from the 7th to the 15th of April. Birds and other objects intended for the exhibition will be accepted from April 3rd, but they should in any case arrive at Vienna (carriage paid) by the evening of April 5th, addressed Société Ornithologique à Vienne, Bezirk. Parkring 12.

# ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

## Veterinary Committee.

*Colonel Kingscote* presented the following report, drawn up by Professor Robertson, respecting the foot-and-mouth experiments at the Royal Veterinary College:

"Since the last report a fresh trial has been made in the same direction as the previous experiments, and on the same lines, viz. testing the susceptibility of home-bred animals to be contaminated directly from material yielded by the imported. This time the experiment has been attended wih results clear and positive.

"In the beginning of December, 1882, having obtained two yearling steers, these were placed in clean and previously prepared boxes, and daily observations made as to their general health and internal temperature.

"On the 12th December a quantity of saliva and other secretions of the mouth, obtained from cattle slaughtered at Deptford while suffering from the fever, was obtained, and at 5 p.m. a portion of this was dropped on the muzzles of both steers, their state of health being at that time apparently good—the temperature of No. 1, 103° F.; of No. 2, 102° F. Twenty-four hours after both animals were feeding well, although exhibiting a trifling rise in temperature. On the morning of the 14th No. 1 was dull, not disposed to rise, and taking little food, the temperature 104—105° F. No. 2 seemed in every respect natural. Towards evening No. 1 showed a little frothy saliva at the angles of the mouth, with an occasional cough, but no appearance of vesicles on the buccal membrane. The morning following, this animal gave unmistakable evidence of being very ill; it was not inclined to rise, refused food; the temperature was now at its height, 106·3° Fahr.; while over the tongue, dental pad, and buccal membrane were several well-developed vesicles. These latter did not show between the digits or around the coronet until the following day, the 16th. At this time several of those in the mouth had ruptured. From the 15th to the 19th this animal's temperature continued high, settling on the latter date at 101° Fahr.

"From the period of the rupture of the first vesicles until the 21st, a wash of 5 per cent. of salicylic acid in a solution of acetate of ammonia, which was afterwards diluted with an equal quantity of water, was employed for the local lesions. This seemed to expedite their healing; not, however, I believe more than some other mild astringents do.

"On the morning of the 17th, finding that No. 2 steer showed no evidence of being affected from the employment of saliva on the 12th, a little of the same material from his fellow, now in the height of the disease, was taken, and gently smeared over his muzzle.

"No indication of disturbance occurred until the morning of the 22nd, when, besides being somewhat dull and disinclined to eat, the internal temperature rose to 103° F. Vesication on mouth and feet appeared next day. Although this animal seemed to suffer more from the local lesions than his fellow, the temperature never reached the same height, 104·6° F. being its maximum

"On the 29th December a yearling steer which had been reared at the College, but had not been in contact with the affected animals, except that he was attended by the man who waited upon these—not, however, being fed or watered from the same vessels—showed symptoms of the fever; in a few days he passed through the different phases of the disease in a similiar manner to the inoculated.

"On the 29th of January, when the animals had fairly recovered from the induced fever, a fresh supply of saliva was procured from the same source as the first, and sprinkled over the muzzles of both animals as before; also, and at the same time, sixty minims of the liquid were injected into the subcutaneous tissue in the inferior part of the neck of ox No. 2. Succeeding this treatment no indication of general disturbance followed, with the exception of a slight elevation of temperature. On the 30th a circumscribed swelling of two or three inches in diameter, and very tender, appeared around the puncture which had been made in the skin of the neck; this in a few days began to discharge a little disagreeably smelling fluid, and continued to do so for a week, shortly after which time the local infiltration had entirely disappeared.

"These two animals have been sold, and two others purchased. With these latter it is now intended to try the effects of the direct conveyance into the food of some of the disease-bearing fluid of the vesicles, with the object of determining whether a modified fever may be produced, which shall confer a protection from the natural fever.

"I have the honour to be, my lords and gentlemen, your obedient servant, "W. Robertson."

This report was adopted, and Sir Brandreth Gibbs was added to the Committee.

*Sir Matthew White Ridley* said that, if in order, he should like to call the attention of the Council to the spread of foot-and-mouth disease throughout the country, and to ask whether it was not their duty to take some action with a view to impress upon the Government the necessity of doing something in the same direction as was recommended by the Royal Commission on Agriculture. He believed that 11,000 or 12,000 animals were reported to be diseased throughout the country, and they all knew how England was blockaded against Ireland, Scotland, and neighbouring countries. It really seemed to him that such a condition of things had been reached that it was their duty

to approach the Government and to ask them to carry out a further step to prevent the importation of any cargoes of live animals from countries as to which they were not satisfied that there was no foot-and-mouth disease. In the case of pleuro-pneumonia he believed it to be very nearly possible to prevent the importation of that disease by slaughtering at the port of debarkation, but it was different with foot-and-mouth disease, which was so contagious and so easily spread that very little good came of slaughtering at the port. At the Northumberland County Sessions they thought of taking some action in the matter, and he told the magistrates that he should ask the Council of the Royal Agricultural Society whether they did not think it their duty to ask for the total and absolute prevention of the importation of all live animals from countries in which the Privy Council was not satisfied that no foot-and-mouth disease existed. He need not enlarge upon the importance of preventing the spread of this disease. It was important not only to the farmer but to the consumer, because the continuance of the disease must tend very largely to increase the price of meat. In view of the serious state of things—the serious restrictions upon the agricultural community which are now imposed, and which have no practical result; in view of the insecurity of slaughter at the port of debarkation, it was their duty to ask the Prime Minister to receive a deputation on the subject. It was quite true that the Privy Council had been active, but in spite of their care it was impossible to prevent the spread of the disease under the existing regulations. He ventured to propose, "That, in view of the great spread of foot-and-mouth disease throughout the country, the Prime Minister be asked to receive a deputation from the Society for the purpose of urging upon the Government the necessity of taking such further steps as will prevent this disease from being imported from foreign countries."

*Earl Cathcart* remarked that in Yorkshire they were blockaded in their own farms; they could not move animals except as meat slaughtered for the market. That state of affairs had been in existence for some little time.

The *Earl of Ravensworth* pointed out how much the public is suffering in consequence of the disease, and observed that the channels by which it is spread are so subtle and so numerous, that there seemed to be no effective mode of preventing the extension of the disease except by adopting some such plan as that contemplated by the resolution.

*Col. Kingscote* seconded the motion. He would be the last person, he said, to do anything that would tend to enhance the price of meat to the consumer; but, at the same time, he knew full well what the agricultural community was suffering from this horrible and insidious disease, and he had no hesitation in saying that if this disease could be stopped, and if the Privy Council were enabled, and when enabled would carry out the restrictions not to allow cattle to come from foreign countries where disease

existed, although the first operation of that measure might enhance the price of meat for a very short time, in a few months —so greatly would the dead meat trade have increased—the price would go down again. The dead-meat trade had never been properly developed, and never would be under the existing regulations. This disease was brought to England, month after month, from foreign countries, and it would never be got rid of until the importation of animals from countries where the disease existed was prohibited. As regards the restrictions now in force, there was one fault he found with local authorities, viz. that a few days' delay always occurred when the disease broke out before the restrictions were put into force. He wished that some means could be adopted to make it imperative upon local authorities within twenty-four hours after the disease broke out to make a certain area around that place.

*Mr. Rawlence* mentioned a case that occurred a fortnight ago at Bristol. A large cattle dealer in his neighbourhood was at Bristol, and in the market he saw two animals evidently suffering from foot-and-mouth disease, and they were put into a cattle truck, and sent to Reading to be slaughtered. No easier mode of spreading the disease could be devised.

The *President*.—That was the fault of the Bristol Local Authorities.

*Sir Massey Lopes* cordially agreed with Sir Matthew Ridley's motion.

*Mr. Wakefield* was very glad that the matter had been brought forward. It was discussed yesterday at the Chamber of Agriculture, and figures were then given to show that the importation of live meat is not so great as is generally supposed by the consumer. The figures showed that the importation of live as to dead was as one to two—*i. e.* about one third of the meat imported is live, and two thirds dead. What proportion that bore to the meat of the country he did not know, but if it could be shown that the consumption of home meat was very largely in excess of the importations of meat from abroad, it made their present case all the stronger. He thought that a great deal might be done by taking care that no delay occurred in putting the regulations into force. In Germany a *cordon* was drawn around infected areas in case of outbreaks of disease.

*Mr. Foster* asked whether the local authorities possessed the power to put the restrictions in force without applying to the Privy Council. Colonel Kingscote very properly said that there was a certain amount of delay in getting the regulations put into force, but in Northumberland they were under the impression that an application to the Privy Council was necessary.

*Mr. Joseph Martin* believed that the local authorities had the power to declare an infected place, but not an infected area.

*Mr. Foster* said that while waiting for the authority of the Privy Council time was given for the disease to spread.

*Mr. Jacob Wilson* reminded the Council that the question before them was not the regulations as to carrying out the present restrictions. The Contagious Diseases (Animals) Act had been properly carried out, but he feared that whatever powers the Privy Council had they did not possess them in the form which would ever warrant persons to embark capital in the establishment of a dead-meat trade; and he thought they should ask the Prime Minister to amend by legislation the present Act. The Privy Council had the power to schedule any country, and to take off the restrictions when they thought proper; therefore, no body of men would embark in a large dead-meat trade. Mr. Mundella had thought proper to assert that by prohibiting the importation of animals from countries in which disease exists the price of meat would be raised 3d. a lb.; but nothing had been advanced in support of that assertion. Sir Matthew ought to be thanked very much for bringing the matter forward, for it was the burning question of the moment, and it was the duty of the Council to take the lead in the matter. Other societies besides the Chamber of Agriculture, he hoped, would press the matter upon the Government.

*Professor Brown* said there were one or two points which had been touched upon, on which he should like to speak. First, although as Mr. Wilson said, the discussion had no relation to the carrying into effect of the regulations now in force, he might usefully state what the regulations were. When an inspector discovered disease on a premises it was his duty at once to make a declaration and serve a copy of that declaration on the owner of that premises, and he might, if he liked, serve a copy of it on the owner of adjoining premises. The mere serving of that declaration constituted that place an infected place. The local authorities were then called upon to meet and to determine whether the inspector's declaration were correct or not, they having the power to alter or to determine finally. They could not, unfortunately, declare an infected area; that could only be done by the Privy Council. His Grace would probably recollect that it was attempted to give this further power, but it was resisted so strongly in Committee that it was abandoned. Touching upon the question before the Council, he should like to remark, that the two points which had been brought forward in close connection were totally distinct. The restrictions at present imposed in this country for the purpose of preventing the spread of foot-and-mouth disease had nothing whatever to do with the importation of disease. The fact was that the disease now existed in this country, and there was no reason to infer that the recent accession of the disease was in consequence of foreign importations. The disease in the latter part of 1880 was undoubtedly introduced into the country by a cargo of foreign cattle. At that time, in the beginning of September, the Privy Council believed the country to be really free from the disease; but from the introduction of French

animals the disease spread throughout the country, and at the end of the year the application of restrictions to fairs and markets became necessary. In the summer of last year the disease was so far reduced that there were some hopes of its extinction; but unfortunately it lingered in the Midland counties, and from thence spread to Norwich. From Norwich Hill the disease spread in every direction. The Norfolk authorities complained that the Privy Council put them under restrictions when they were the victims, but the Privy Council knew perfectly well that when disease appears at Norwich Hill it means the extension of the disease throughout the country. The restrictions were certainly having a very beneficial effect throughout the country; the outbreaks reported on Monday fortnight were 101; a week later, 70; and last Monday they had declined to 50. These facts went to show that something is gained by restriction, and when he mentioned that during last year the number of outbreaks and attacks were between 4000 and 5000, and that in 1871 over 4000 outbreaks and over 30,000 attacks were frequently reported in one week, he thought they would be disposed to admit that if they could make a whole year's outbreaks and attacks when restrictions were in force represent one week's outbreaks and attacks when the country was without restrictions, it was clear that the restrictions were beneficial. In reference to the question of prohibition of the importation of live animals from abroad, it occurred to him at the moment that the proposal which the Council contemplated bringing before the Government was a totally new one. There had been memorials without number, asking that the Government should exercise its powers, and prohibit the importation of animals from all countries. Other suggestions had taken the shape of prohibitions from all countries in which disease existed, which really amounted to the same thing, because there was positively no country absolutely free from some form of disease. Total prohibition the Privy Council had no power to insist upon, but the Act (Section 35) distinctly stated that "the Privy Council may from time to time make such general or special orders as they think fit for prohibiting the landing of animals or of any specified kind thereof, or of carcases, fodder, litter, dung, or other thing, brought from any specified foreign country, or any specified part thereof." If the proposition was only that the Privy Council should prohibit from a country in which the particular disease, foot-and-mouth disease, existed, and for so long a time as foot-and-mouth disease existed in that country, he believed that the powers of the Privy Council would extend so far; but he wished to call the attention of his Grace to the fact that this was only one of a number of propositions which would come before the Government, and the other propositions, he believed, would be of a much more sweeping character. Their object would be the entire exclusion of importations from abroad, and the substitution of a dead-meat trade.

*Mr. Jacob Wilson.*—Is it a fact that diseased cattle have been imported and are constantly being imported into Deptford ? and that an outbreak of foot-and-mouth disease was traced to the use of the intestines of sheep for feeding pigs ?

*Professor Brown.*—That is true ; the outbreak occcurred in the premises of a butcher in the town of Deptford. We have had so many cargoes of diseased animals from France during the last few months that the Privy Council have prohibited the importation of animals from the port in that country from which they have chiefly come—namely, Boulogne. I wish to reiterate that the present accession of the disease is not due to the importation of animals from abroad, because we have so clearly traced it to Norwich Hill.

*Mr. Jacob Wilson.*—And diseased animals have also been landed from America in Liverpool ?

*Professor Brown.*—Yes.

After a short conversation the resolution was unanimously adopted, and a deputation was accordingly appointed.

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## CENTRAL VETERINARY MEDICAL SOCIETY.

The meeting of the above Society was held on the 1st March, at Red Lion Square, Mr. J. Woodger occupying the chair. The other Fellows present were Messrs. T. Burrell, A. Broad, J. Broad, Arthur Broad, A. R. Charles, G. R. Dudgeon, G. Gray, H. J. Hancock, W. Hunting, T. S. Price, J. Rowe, W. Roots, F. G. Samson, and H. King Shaw.

*Mr. Samson* exhibited a small renal calculus, with the kidney of the dog from which it was taken. After a careful *post-mortem* examination he could discover no other cause for the animal's death. The symptoms shown had been occasional constipation, pain on pressure over the loins, loss of appetite, and great thirst.

Some discussion followed upon the question of the cause of death, and, in answer to queries, Mr. Samson stated that the body was well nourished, no wasting had occurred, no blood was voided with the urine, and the stomach showed no evidence of gastritis or any abnormality.

From the latter statement *Mr. Rowe* said he felt compelled to express dissent. He thought there must have been a flaccid condition of the gastric muscular coat, such as he had invariably found to exist in dogs which had suffered from extreme thirst with vomition after drinking water.

*Mr. Broad* showed the head of a collie dog, eight months old. Upon the palate, lips, and tongue were a great number of warty growths, most of them exceeding a quarter of an inch in diameter, and many being in clusters, especially on the dorsum of the tongue; they extended on the mucous membrane as far back as the posterior part of the fauces. Treatment was not

continued long enough to determine whether they would reappear after excision.

An essay by *Mr. Charles Sheather* on "Contracted Feet in Horses" was then read.

The essayist chiefly confined his remarks to contraction as a disease pure and simple, a state of foot brought about by many causes, among which he enumerated inactivity, hot stables, and a bad system of shoeing, as an illustration of inactivity producing what he termed atrophy of the feet. He said he knew a stable of eight horses which had been for a long period with scarcely any exercise but a short daily walk; all had now contracted feet. He minutely described the characters and peculiarities of the contracted foot and the altered gait produced, and particularised the treatment to be adopted.

ALFRED BROAD,
*Secretary.*

### COLLEGE BUILDING FUND.

At a meeting of Council of the Central Veterinary Medical Society, it was unanimously resolved to make a donation of Fifty Guineas to the "Building Fund" of the Royal College of Veterinary Surgeons.

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## LIVERPOOL VETERINARY MEDICAL ASSOCIATION.

THE annual meeting of the above Association was held in the Medical Institute, Hope Street, Liverpool, on Tuesday, the 13th February.

There were present the President (Mr. Reynolds, in the chair); Messrs. Morgan, Elam, Kitchen, Moore, Butters, Brizell, Kenny, and Secretary, Liverpool; Messrs. P. Taylor, W. A. Taylor, T. Taylor, Greaves, Faulkner, Locke, and Lawson, Manchester; Mr. Woods, Wigan; Mr. Whittle, Worsley; Messrs. Edwards and Storrar, Chester; Mr. Pilkington, Woolton; Mr. Stone, Little Houlton; Mr. Barron, Sutton; and Mr. Dacre, Altrincham.

Letters of apology intimating their inability to attend were received from Professor Williams; Messrs. Darwell, Wolstenholme, W. Leather, A. Leather, Bell, Roberts, and Lewis.

The minutes of the previous meeting were read and confirmed.

It was proposed by *Mr. George Morgan*, seconded by *Mr. Greaves*, and unanimously carried, that Professor Robertson be nominated and supported by this Association for one of the forthcoming vacancies in the Council of the Royal College of Veterinary Surgeons, and that a committee be appointed to co-operate with the Lancashire, Irish Central, Scottish Metropolitan, and Yorkshire Veterinary Medical Societies, to assist in returning their nominations as members of Council.

Messrs. Reynolds, Moore, Kitchen, and Bain were the members of Committee appointed to co-operate with the above societies.

*Mr. Greaves* moved that this Association gives its hearty support to the National Veterinary Medical Association. He considered the Association would be sure to do a deal of good and stimulate science. A report would be issued after each meeting which would prove of incalculable benefit by the essays and other matter it would combine.

*Mr. Whittle* seconded Mr. Greaves' motion.

*Mr. Morgan* could not see his way clear to support Mr. Greaves' motion, and moved an amendment that the Liverpool Veterinary Medical Association remain neutral.

*Mr. T. Taylor* seconded Mr. Morgan.

After considerable discussion in which the President, Mr. Taylor, Mr. Moore, and others took part, it was resolved that this Association remain neutral.

*Mr. Elam* nominated Mr. Ross, Liverpool, for election at next meeting.

*Mr. Faulkner* proposed Mr. J. Brizell and Mr. L. Butters, Liverpool; and Mr. Lloyd, Denbigh, as members of the Association; seconded by *Mr. Kitchen*, and carried unanimously.

The *President* then read his inaugural address.

*To the Vice-Presidents and Members of the Liverpool Veterinary Medical Association.*

Gentlemen,—I ought to be the last to question your wisdom in electing me a second time to be President of this Association, but I cannot refrain from an expression of sincere regret that neither of the gentlemen, the first and second of your choice, would consent to accept the honour. Both have merited to the full the honorable position it was your wish to confer, and either of them would have occupied it with individual distinction, to the advantage of the Association, and to the dignity of the whole profession.

When your third choice fell upon me, I was impelled by several reasons to accept this chair; amongst them a sense of duty born of gratitude for the numerous proofs I have received of your appreciation of my services, for to the members of this Association is due my election to the Council of the Royal College of Veterinary Surgeons—a desire to do all I can for the advancement of the profession—a high estimate of the honour conferred; and lastly, a wish to efface from my memory the recollection of some painful incidents, which the older members will remember, disturbed the harmony of our meetings when ten years ago I occupied a similar position. The discussions which then arose upon alleged breaches of professional etiquette were commenced by rancorous attacks, provoking recrimination equally virulent, and left a dark shadow upon a period which

would otherwise have lived in my memory amongst its happiest reminiscences.

The themes of Presidential addresses have usually been drawn from past histories and present occurrences; and whilst I am constrained to briefly touch upon circumstances connected with the immediate past, I shall in the main occupy my short time in some anticipations for the future, and review very shortly some of the influences which I believe are in operation to promote or retard the advancement of the veterinary profession.

Only ten years ago the medical world was content to recognise and to classify all zymotic diseases as groups of effects; of their precise causes little or nothing was definitively known; and no longer than three years since the germ theory of disease was spoken of as of a vague and mysterious influence. But as research into causation became more minute and systematic, a mass of evidence accumulated which has led up to the identification of whole genera of organisms that are now believed to play the most important part in the production and dissemination of destructive maladies. More recent experiments have shown that some of these minute organisms are capable not only of being identified as the essentials of certain diseases, but that they can be isolated from the body of an infected animal, made to multiply, and by processes of artificial cultivation their deleterious influence may be modified, weakened, or destroyed.

Under ordinary conditions inoculation, with an infinitesimal quantity of blood or fluid taken from an animal suffering from specific disease, such as rinderpest and splenic fever in cattle, fowl cholera in poultry, smallpox in sheep, glanders in the horse, and rabies generally, will in the natural course of events produce death in perhaps 80 per cent. of animals inoculated; but the distinguished French chemist Pasteur (whose name will be immortalised for his discoveries in this line of research) has experimentally demonstrated that by processes of artificial cultivation the potency of the germs of certain of these infective fevers can be weakened to varying degrees of virulence; that is to say, by altering the methods of culture or by arresting it at different stages, a fluid may be elaborated capable when inoculated of causing fatal results in 60, 40, 20, or 5 per cent., and, moreover, that by allowing the ripening to proceed further, so great a degree of attenuation can be secured that the germ-bearing fluid, when introduced into a healthy system, produces no symptom of affinity with those of the original disease as usually evolved.

Most persons are aware that, just as successful vaccination is a protection against smallpox, so does one attack of certain other infective diseases render the system refractory to a second invasion of the same kind, and that under such conditions exposure to even powerful sources of infection is unattended with positive results. M. Pasteur discovered that precisely the same state of things followed his experiments, and that healthy ani-

mals which had been inoculated with attenuated virus were protected from a second attack, whether the final source of contagion was due to cohabitation with diseased animals or to the direct introduction of fluids of the most powerful virulence. This important and most valuable discovery is the parent of what M. Pasteur designates, not very aptly, I think, "protective vaccination," an operation, however, which is probably destined to confer the most precious benefits upon mankind, and also on domesticated animals. It is likely to revolutionise the practice of physic and conservative sanitation, for if the hold which science appears to have obtained over the minute creations, the essential accompaniments, if not the factors of contagion, proves to be permanent, there never was a time in the history of medicine when diseases of the most appalling kinds were so near being brought under the control of physicians, human and veterinary. Already the germs of fowl cholera, splenic fever, sheep pox, and swine typhoid have been not only cultivated to safe attenuation, but so used as "vaccination" agents they have been found to confer upon inoculated subjects an immunity from subsequent attacks. At the present time the virus of contagious pleuro-pneumonia is being much experimented with, the results, as yet indeterminate, are such as to permit the indulgence of a hope that in this case also science will prove triumphant. Within the next decade it is far from improbable that scientists will be able to identify and by culture to enfeeble the "contagia vira" of glanders, rinderpest, rabies, and many other maladies, which, in their natural unmodified conditions, are so fatally malignant, it will then come within the sphere of every-day veterinary surgeons to put to practical use the results of scientific researches.

It would not be right to pass from this subject without congratulating the profession, and especially this section of it, who at our November meeting had the opportunity of hearing a very instructive lecture by Professor Williams upon the probable etiology of louping-ill, a disease which annually causes great losses to the northern sheep farmers. It is perhaps premature to speak positively upon the stability of the professor's deductions; yet, the lines of argument he laid down could be readily followed, and his facts carried such a feeling of conviction that it is not too much to hope that in this kingdom we have at least one veterinary surgeon whose researches compare favorably with other followers of the eminent M. Pasteur.

In a brief review of the aspect of veterinary affairs political, I am sure you will accord to me your indulgence for omitting any especial reference to the recently obtained Veterinary Surgeons Act. The time for criticism upon the probable results of its operation has not arrived, nor is this chair the proper place for the critic to occupy. In due course the subject will doubtless receive the attention its importance deserves.

The education of the youthful veterinary surgeon has occupied

the minds of all interested in the welfare of the profession for a number of years, but the progress to a satisfactory solution of an admittedly difficult problem does not appear to have been at all commensurate with the amount of labour and thought bestowed upon it. It is not that the periods of study have not been prolonged; it is not that reforms in the modes of examination have not been instituted; nor yet that means have not been adopted to ensure the possession of at least a moderate education by the graduate on his admission to the teaching schools. The College professors, the students, the examiners, and the Council have each in turn been blamed for what I am afraid is more a fact than a fear, that a considerable percentage of students at the time their educational careers are supposed to be completed, and they are entrusted with a diploma, are not what that diploma certifies them to be—"fully qualified to practice the art and science of veterinary surgery and medicine." Of course it is not to be expected that every one who chooses the life of a veterinary surgeon can be successful. The routine of our profession, as seen from the outside, possesses many attractions to young men, some of whom have no real aptitude for the work they are allured to adopt, and afterwards discover to their cost that the bent of their inclination lies in another direction. It is not in the power of education to develop that which has no existence, but where personal fitness does exist, the man will assert himself in spite of opposing circumstances. In no case, however, is it to be expected that a young man of twenty or twenty-one years of age can by any possibility become proficient in the *practice* of a profession which for complete fulfilment requires, perhaps more than any other, a wide range of observation and extended experience; and I am of opinion that, so long as men of this age can obtain the diploma, it will be necessary for them to mature their practical knowledge by acting as assistants or improvers to established practitioners for periods which will vary according to individual receptivity.

As you are aware the Council of the Royal College of Veterinary Surgeons, at the last quarterly meeting decided by a majority to obtain power by supplementary charter to enforce compulsory pupilage, an effort I presume intended to remove in some degree culpable negligence from the Council or its examiners, to the student; but it seems to me that such an attempt to shift responsibility is about as logical as is the reasoning of an ostrich which in time of danger hides its head in a sandheap and believes itself secure. I am one of the last to assert that practical proficiency *can* be accomplished without *prolonged* service with a practitioner; but I hold an equally strong opinion that the desired object may be attained by the adoption of means which will respect the feelings of the students by the avoidance of compulsion. As a nation we have a natural antipathy to coercion, but are ever willing to conform to necessary requirements, and I believe that when the system of final

examination has been rendered of such a character that no graduate will be *able* to obtain his diploma who has not only seen several years practice perfunctorily, but who during that time has been taught how to apply scientific knowledge to the curative treatment of sick or lame animals. Under such conditions of examination an apprenticeship with a *competent* practitioner will become an absolute necessity, the college professors will be compelled to teach their pupils how to rightly estimate the importance of their anatomical, physiological, and chemical studies as means to the end and aim of perfecting their pathological knowledge, and the student will find it essential to apply his theoretical attainments to practical and every-day work. The minute and exhaustive examinations upon general subjects will probably have to be written, and the practical one conducted in the sick box or cowshed *largely extended*, and made to comprise concurrently with pathology those allied branches of study without which pathology is an empty name. The examiners ought to be taken from the ranks of those who not only have practised with science but also to personal profit.

The accomplishment of such results in their entirety is beset with very great difficulties, and, as we have seen, important changes of system in education and examination will be involved, its achievement can only be gradual and may be very slow. My inexperience in teaching as well as in examining (which I candidly admit) no doubt discounts the value of my opinion, nevertheless I venture to predict a fulfilment of the object we are all striving to attain, in the near future, and in the meantime I would most strongly urge the profession not to lie down in front of the difficulties which appear to obstruct its consummation ; for surely no effort is too great, no expense too weighty, which may promote the removal of the reproach that the diploma of our College is sometimes obtained by men who are below the proper standard of proficiency in the practical details of their calling.

I should like to say a few words upon professional terms. In all branches of science there is a growing tendency to use words of many syllables derived from the Greek and Latin languages, and some months ago there appeared an article in the *Veterinary Journal* advocating the discontinuance of calling common diseases by commonly understood names. I find no fault with the employment of scientific phraseology amongst scientists, nay, I agree that the nomenclature of animal ailments for the use of veterinary surgeons requires revision, and I admit that the dead language derivatives are as a rule euphonious and, to the educated ear, expressive ; but, called upon as veterinary surgeons are day by day to express to imperfectly educated persons what they have a right to know respecting the condition of their property under treatment, I venture to plead for the retention for those Saxon or old English words which convey a plain meaning in easily understood terms, and whose very antiquity

ought to command some respect. In no place should language be more simple and ungarnished with technicalities than in the witness box; attempts at high-flown verbosity, sometimes there practised with a view of creating an impression of the speaker's importance or learning upon a bench of magistrates or a jury, not only as a rule fail in their object, but may seriously imperil the interests of a client or tend to defeat the ends of justice. I am a believer in the words of George Herbert:

> "Let forrain nations of their language boast,
> What fine variety each tongue affords;
> I like *our* language as our men and coast,
> Who cannot dresse *it* well wants wit not words."

It has recently been asserted that with the end of the year 1882 veterinary empiricism will cease to exist, and doubtless *if* the Veterinary Surgeons Act can accomplish what is hoped by all of us, and believed in by the promoters and supporters of the measure, empiricism *outside the profession* will be severely checked. Time alone can determine the issue of this question, but, depend upon it, gentlemen, quackery is not to be stifled, much less destroyed, by statutory enactments; it must be killed by the starvation process, and not until the same energy that has been expended upon the procuration of Acts of Parliament and Royal Charters has been devoted to perfecting the means for making young veterinary surgeons more competent will empiricism die out. The extermination of pretentious practice can only be surely accomplished through the power of that natural law which decrees "the survival of the fittest," and so consummated the result will have been obtained by a high-spirited and commendable policy.

The election of Examiners for the next term of five years has not met with universal approval. One section of the body corporate considers that the Examiners in Botany, Chemistry, and Physiology should continue to be chosen from amongst specialists in those studies attached to the medical profession; the other division, to which I have become a convert, urges that the time has arrived when examinations upon every subject may be safely and advantageously entrusted to the elect of our own ranks. I cannot but regard Professor Macfadyan's accusation, that the decision of the Council, by the election of veterinary Examiners, has destroyed the confidence of both teachers and students, as premature and unjustifiable. Such a remark would have been better timed when the experiment had proved a failure, as it is, an assumption of incompetency has been made, which I firmly believe will bring a measure of regret to its author. No one here will doubt but that the new Examiner from the County Palatine will perform his work in a manner that will at once command the confidence of the student, the teacher, and the profession.

It is also generally known that the endeavour to secure the

exclusive election of veterinary Examiners is not the only grievance against the Council; and whilst we may sympathise with northern practitioners because none of their number were placed upon the Scottish section, we may be permitted to ask if the malcontents have done all they could towards the accomplishment of their desire? If the Council failed in its duty to the north contingent that failure was due, if not entirely at least in degree, to the ignorance of some of its members of the names of the best qualified men residing in the north. Scotch interests can be best advocated by Scotchmen, and those interests ought to be fitly represented, not that they suffer in the hands of the present members of Council resident in Scotland, but in relation to the question at issue it must not be forgotten that all the Scotch representatives *are teachers*, and that they consequently feel great diffidence in advocating the claims of Examiners who would be called upon to sit in judgment upon their works as teachers. I believe it to be the general wish that each division of the kingdom should be fairly represented, not only in the Council chamber, but also upon the Board of Examiners. If our northern colleagues cannot command amongst themselves sufficient influence to secure the election of more of their number upon the Council they have at least had evidence that we are disposed to assist them to return good men, for Professor Robertson, who in 1879 was a practising veterinary surgeon in Kelso, was selected by this Association, proposed by its President, and successfully supported.

There are amongst us alarmists, who fear lest competition in practice will ere long reduce to a minimum our sphere of profitable employment; but surely such grounds for apprehension are unreal as shadows, so long as the progress of our science is not suffered to stand still, and we are collectively embued with a laudable ambition to keep abreast of recent discoveries. There are untold areas of virgin soil as yet untouched, and may be unthought of, which of necessity can only be tilled by workers of our own especial order.

The inspection of meat, whether the product of imported or home-fed cattle, will assuredly be entrusted to us, and in anticipation of that end we act wisely when we try to determine the line of demarcation between wholesome meat and that of inferior quality, which has been rendered unfit or unsafe to be consumed in consequence of disease, accidental conditions, or from the effect of therapeutic agents. The distressing results following the consumption of pork and hams containing Trichinæ should before this have prompted the same vigorous action from our Government as they have determined the movement of the authorities of some continental countries. Special legislation for the inspection of all possible sources of contamination by imported pork and swine should be enacted, and the conduct of its provisions entrusted to competent persons.

The possible relation that exists between bovine tuberculosis

and one of the forms of tubercle as it affects mankind, is a matter of the highest possible importance to the community, and chiefly so in reference to the use of milk, as the most important article of diet for its infant population. It is impossible to estimate what amount of infantile disease and debility, to say nothing of mortality, may not be due to the ingestion of milk from cows affected with tubercle.

The provisions of the Contagious Diseases (Animals) Act will have to be extended to meet public requirements, its area enlarged to include some diseases which do not now come within the scope of its operations, and it must deal more stringently with others that are not now completely under its direction. It cannot be doubted but tuberculosis is on the increase, and I am possessed of presumptive evidence that the disease may be propagated, not only by actual cohabitation, but even by the occupation of a stall from which an affected animal has previously been removed.

The value of domestic poultry has of late years increased to such an extent that a study directed towards the prevention of many diseases which cause frightful mortality to fowls in domestication, grouse upon moors, and to the denizens of pheasantries, offers if a modest yet a lucrative field for scientific experiment. When it is remembered that for a single bird a price higher than that of an average horse has been paid, and that every year the mortality amongst highly-bred fowls causes as great a pecuniary loss as on many a small sheep farm, it cannot be questioned but that rightly aimed efforts towards the reduction of the annual loss would not only be highly appreciated by poultry fanciers and game preservers, but prove a remunerative occupation to specialists in this particular research.

Again, if the anticipations of the benefits to be derived from protective inoculation against disease are in even a minor degree realised, an immense field of employment and usefulness will be opened up to the veterinary profession, and one which, in its relation to cattle and sheep practice, will prove far more remunerative than the curative treatment of many ailments will admit.

The highest medical authorities are now really alive to the fact that the study of animal plagues is one of three most valuable sources from which they can glean a knowledge of human disease, and the inauguration of chairs of comparative pathology in universities is seriously contemplated. It is not probable that distinguished positions of this kind will, except in rare instances, be filled by a veterinary surgeon; such a reflection should not, however, cause us either anxiety or annoyance. The difference between the wide range of the comparative pathologist and that of our more limited functions is very great indeed, and whilst our science must profit by the results of his investigations, he will have to rely upon our practical knowledge and experience for corroboration of the soundness of his deductions, so shall we

not be rivals of the higher profession, but rather the indispensable partners of its labour.

And lastly, as the correlation of human diseases with animal plagues is found to be more and more intimate, so will our sphere of usefulness be enlarged and our status in public esteem approach nearer to that enjoyed by members of the medical profession, and our aid sought for the solution of problems of universal sanitation.

The life of our Association now numbers eighteen years, and may, I think, claim to have achieved as great a measure of success as most others of its kind. Financially, its condition is not quite as satisfactory as could be desired. The Treasurer's statements show that our expenditure has of late considerably increased, and on that account it may not be desirable to call upon its funds towards the cost of an annual dinner; but our modest minor hospitalities at each quarterly meeting will be associated with a warm and cordial welcome to our neighbours, friends, and strangers, who, in the name of the Society, I now invite to give us their countenance and support upon every convenient occasion.

There are few of the luminaries of the profession who have not honoured us at one time or another with their presence, and delighted and instructed us with masterly lectures and addresses. The presence of these distinguished gentlemen has been no less welcome than their intellectual treats have been appreciated. It is my intention during this year to request the introduction of subjects of practical interest by members of our own Society, and I hope to awaken the energies of our younger colleagues especially, to stimulate them not only to participate in the debates, but also to bring forward subjects for discussion. Modesty and a deference to the opinions of their seniors is highly commendable, but the juniors may take courage by the thought that *all* knowledge is not centred in the most experienced; and they should not forget that in a very few years the administration of the affairs of this Association will of necessity devolve upon them, and the sooner they become familiar with the duties the future will call upon them to fulfil, the more easy, pleasant, and profitable will those duties be. I am sure I only echo the sentiments of the older members when I say that the ideas of the younger will be received with attention and respect, and if opinions upon the soundness of their arguments differ, those differences will be dispassionately and courteously discussed to the end that every one working for the common good will derive a substantial and permanent benefit. In the absence of demonstrative proof, it is only by debate that the true metal of science can be separated from the dross. Uniformity of opinion is as antagonistic to the perfection of a society as unity is its tower of strength. I will read to you how a most eloquent writer has expressed the difference between unity and uniformity.

"In unity there is life, beauty, power; in uniformity there is stagnation, deadness, monotony. There is uniformity in the darkness which enshrouds the midnight sky, where neither moon nor stars appear; there is unity in the beautiful bow that spans the heavens, blending its prismatic tints into one resplendent arch of promise. There is uniformity in the waters of the stagnant lake, over which the perfumed and vivifying breath of heaven sweeps in vain; there is unity in the gushing fountain, flowing forward and sparkling from the hidden rock. There is uniformity in the polar seas, whose waves eternal winter binds as in solid granite; there is unity in the oceans' billows, unfettered and free rolling in all their majesty and might. Unity and not uniformity is the primary law of God in the kingdom of nature."

Scientific societies possess all the benefits of co-operation without its disadvantages, the useful members do not miss the information they impart, any more than the sun shines less resplendently to-day for the glorious light he yesterday dispersed, or sweet scented flowers become less fragrant for the odours they have exhaled to the passing breeze. Let no one here forget that *he* has a duty to perform, a duty peculiarly *his own*, one that cannot be delegated; for as the organs of one body have distinct functions but a reciprocal dependence, so every member of an association is in some respect or other necessary and useful to the perfection of the whole:

> "What is man
> If the chief good and market of his time
> Be but to sleep and feed?—A beast! no more.
> Sure, He that made us with such large discourse,
> Looking before and after, gave us not
> That capability and God-like reason
> To rust in us unused."

At the termination of the address, which was greeted with applause, Mr. Morgan congratulated the President for his able and interesting paper.

A paper by Mr. Kitchen was left over till next meeting.

A vote of thanks to the chairman then terminated the meeting.

ALEX. BAIN,
*Hon. Sec.*

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## LANCASHIRE VETERINARY MEDICAL ASSOCIATION.

The Twenty-first Annual Meeting and Dinner of this Association was held at the Grosvenor Hotel, Manchester, on Wednesday, February 21st.

The following forty members and friends were present, viz.: The President, Mr. Wm. Woods, in the chair; Mr. George Fleming, President Royal College of Veterinary Surgeons; Professor Williams; Messrs. R. S. Reynolds, Thos. Greaves, Peter Taylor, Wm. Whittle, Dr. Martin, W. A. Taylor, T. Taylor, J. W. T. Moore, W. Leather, C. W. Elam, S. Jackson, E. Kitchen, W. J. Welsby, S. Locke, T. Hopkin, A. Lawson, Jno. Lawson, C. W. Ingram, E. Faulkner, A. F. Appleton, Wm. Dacre, A. Munro, Jas. Lambert, E. H. Leach, Wm. Woods, junr., A. M. Michaelis, Thos. Briggs, W. Packman, J. B. Polding, B. H. Russell, H. Ferguson, A. W. Briggs, A. H. Santy, T. B. Stone, Wm. Broughton, Wm. Bromley, and J. B. Wolstenholme.

The *Secretary* read the list of replies stating inability to attend; also the minutes of the last meeting, which were confirmed.

*Mr. Peter Taylor* then referred to the death of Mr. W. A. Cartwright, of Whitchurch, an honorary member of this Association, and paid a fitting tribute to the memory of one who so long and earnestly strove for the advancement of the profession of his choice. Mr. Taylor concluded his remarks by moving that "a letter of condolence be sent to the relatives of the deceased gentleman;" this was seconded by *Mr. Thos. Greaves*, and supported by the *President* of the Royal College of Veterinary Surgeons, both of whom bore testimony to the ability and high aim of our late friend. The motion was carried unanimously.

The *Treasurer* then handed the President a letter he had received, announcing the death of Mr. Thos. S. Faulkner, of Rochdale, also a member of this Society; and moved that a letter of condolence be sent his relatives. This was seconded by the *Secretary*, and carried unanimously.

*Mr. S. Locke* nominated for membership Mr. Ed. Kitchen, M.R.C.V.S., of Liverpool.

*Mr. Wm. Leather* proposed, and *Mr. C. W. Elam* seconded, that "Mr. Alexander Bain, M.R.C.V.S., of Liverpool, be a member of this Association." Carried unanimously.

The *Secretary* proposed, and the *Treasurer* seconded, that "Mr. Wm. Davidson, M.R.C.V.S., of Manchester, be a member of this Association." Carried unanimously.

*Mr. Wm. Leather* moved that Rule II be so amended as to read as follows:—"That the meetings shall be convened by circular, giving each member four clear days' notice of each meeting, which shall be held on the second Wednesday in the months of March, June, September, and December, on premises that shall be fixed from time to time by the Association." Seconded by *Mr. Wm. Whittle*, and carried unanimously.

*Mr. Whittle* then withdrew the motion of which he gave notice at last meeting.

The annual election of Members of Council of the Royal College of Veterinary Surgeons was then brought forward; and *Mr.*

*Thos. Greaves*, after alluding to the very regular attendance and sound policy of Mr. William Whittle, who represents this Association, and retires by rotation in May next, proposed that Mr. Whittle be the candidate to represent this Association.

*Mr. Peter Taylor* seconded the motion, and it was carried unanimously.

*Mr. Whittle* then thanked the Association for again honouring him in their selection.

The *President* then read the following Inaugural Address:

GENTLEMEN,—I must thank you all for the position in which I find myself to-day, a position, the honour of which is at any time one to be coveted, but at the present, the twenty-first anniversary of the Society's existence, one of the highest honours a society could bestow upon any one of its members.

I am pleased, and I congratulate the Society upon the fact, that those gentlemen who were its earliest promoters and who founded the Society are still amongst its most earnest workers and devoted adherents, thus showing that they are not ashamed of their offspring. Some there were who nursed it as a child, and who have now passed away, whom the Society remembers with the liveliest feelings of gratitude and goodwill, and who well deserve a good name from the whole profession for this act alone, even if they had no other claim upon the profession's remembrance.

This was the first Society of Veterinary Surgeons formed in England, and as exemplifying the maxim, "What Lancashire thinks to-day all England will think to-morrow," the whole of the United Kingdom has followed in its wake, and there are now societies in almost every part of her Majesty's dominions. It would take too long a time, and it is too well known to you all, to tell the good these societies accomplish. They bring together veterinary surgeons upon the broad basis of common fellowship. They are the best method of intercommunication and interchange of ideas. They are an incentive, particularly to the younger members, to keep up their scientific knowledge by reading, and from them, I might almost say, from this Society has sprung one of another kind and of equal importance—I mean the Benevolent and Defence Society—one to which every member of the veterinary profession ought to belong, which has done and which will still continue to do a large amount of good.

I congratulate the Society upon its present prosperity. I believe that it is not only the father of them all in age, but that it is, and I hope will long continue, the father of them all in strength. A further development of these societies is now awaiting your approval and support. The British National Veterinary Association—a natural sequence of the success attending the National Congress held last year—is in course of formation. I shall say little concerning it, because there is printed matter ex-

plaining its objects, except that it is not intended to supplant local associations; this it can never do, but it is intended to hold meetings periodically to unite the strength and ability of the whole profession, where pre-arranged subjects, both complex and simple, relating not only to science, but to the general welfare of the profession, may be explained and discussed by those who have special ability in that direction. I believe that local societies have nothing to fear from it, that it will live or die entirely according to its merits, and that it deserves our cordial support. Having spoken of some good the societies have done and are still doing, I would like to say a few words of one improvement which still lies open to us. We require to become a still greater political force, to extract from Government that which is due to us, in the way of Government recognition. The Government are always very tardy at recognising the good qualities of any public body, and it is only by strong, united, and combined action, such as these societies give, that we can hope to obtain what we require. True we have by the almost single exertions of Mr. Fleming obtained an Act which will in future years be of immense benefit, but I believe there is not another member of the profession who could have secured to us that Act with the little assistance that Mr. Fleming received. We are now threatened with a change in the number of Government veterinary surgeons in India, and that change not by way of a much desired and very necessary increase, but by a reduction, which I think we ought to make it our duty collectively to endeavour to prevent.

We have recently made an alteration in the Board of Examiners, and I confess it was not without some feeling of trepidation that I saw the old and honoured names of the members of the sister profession swept from our Examining Board, but I think a careful study of the new examiners will show that in making that change we have not in any way jeopardised the welfare of the profession. There are, and always have been, those who will carp and criticise at every innovation, and it is necessary that it should be so, but what I wish to impress upon all is that it rests with the profession collectively as to whether their Board of Examiners is a good one. Let the profession send the best members they have to represent them in the Council, and then depend upon it the Examining Board will be a strong one and a good one, and just as the composition of the Examining Board is in the hands of the veterinary profession, so the composition of the veterinary profession is in the hands of the Examining Board. With them the future welfare of the profession largely rests, and I trust and feel that not a single examiner will enter upon his duties without a due sense of the responsibility with which he is entrusted. The profession as a body is rising in the public estimation more rapidly than its most zealous advocates of five-and-twenty years ago would ever have dared to hope. It is now recognised that there are among veterinary

surgeons men of the highest scientific ability, and it remains for us and for the youth of our profession to watch that no retrograde step mar our progress. A scientific discovery has been made by one of our number (Prof. Williams) in connection with that peculiar disease affecting sheep known as "louping-ill," which, if found to be absolutely or nearly correct, will bring the veterinary profession to the fore in a most marked manner, and will radically change the opinion of scientific men as to the development of vegetable organisms within the human body. I heartily wish the discoverer every success, and trust that it will not be the last success he will have of a similar kind.

I would like now just to say a few words anent the recent spread of foot-and-mouth disease. I believe the cause of the disease becoming epizootic, in my district at any rate, is due to the large importation of Irish pigs. I have not been able in all cases to trace the origin of the disease in those cattle coming under my observation, but I have in some cases traced it undoubtedly to recently imported Irish pigs, and I have stopped Irish pigs on the highway suffering from the disease, and when added to this it is authoritatively announced from Dublin that the disease is fearfully prevalent, I think it behoves the authorities at once to take steps to prevent its further spread from this source; for though it is probably one of the least malignant of the contagious diseases amongst cattle with which we are familiar, it tells very heavily upon the dairyman and those who supply our towns with milk.

I would like, in conclusion, to say a few words concerning a society which has in one way and another been recently brought with more than usual prominence before our notice. The Royal Society for the Prevention of Cruelty to Animals is undoubtedly doing good work, if one will only consider the amount of pain cruelly inflicted upon the lower animals before it came into existence, and the greatly decreased amount since. It is highly necessary for the welfare of our profession that we should be considered by the general public the protectors of the lower animals; that where pain, in whatsoever form, is unnecessarily inflicted, we should boldly step forward and denounce it even at the cost, as it may at the time appear, of some popularity. I think we should support with our whole strength the well-being of the society, and I trust it may not be considered that I am in any way hostile to it, but rather the reverse, in making a criticism or two upon it with a view to its improvement. The inspectors, as a rule, I believe to be conscientious and trustworthy men, but there is a sort of rivalry amongst them that the inspector in a district shall have as many or more cases come before the court and as many or more convictions as his predecessor. This, I think, and I say it without any personal reference, is apt to lead to a system of bringing before the magistrates minor cases, which might very well be let alone, simply in order to increase the sum total of cases per annum. Now, I think that if,

instead of taking the number of convictions, an officer obtains as evidence that he has been doing his duty, the Society would appoint in each locality a small committee, of which one or more veterinary surgeons should be members, to report periodically as to the manner in which the Society's officer performed his duty, it would be a plan better calculated to insure protection to the lower animals, to the public, and to the officer himself, than what seems to be the present system. Of course it may be said that any man stopped by an officer can bring his horse to a veterinary surgeon and get his opinion upon the case, but it must be remembered that a poor ignorant carter has often such a wholesome dread of the society's officer, that whatever he says is law. I know that in some places officers are deterred from obtaining in any but very serious cases a professional opinion, because the magistrates object to veterinary surgeons giving evidence, on the plea that it is expensive for the delinquent to have to pay a professional fee in addition to a fine; but it cuts both ways, it is protective as well as expensive, and there are degrees of cruelty of which in some cases few society's inspectors are capable of judging correctly. Moreover, it is not impossible to imagine that sometimes the anxiety to obtain a conviction may be such as to make an officer unintentionally overdraw his case. Hence I think that, in spite of even magisterial opposition, a veterinary surgeon's opinion ought in most cases to be obtained even though it should not afterwards be necessary for that veterinary surgeon to appear in court.

*Mr Greaves* moved that "The best thanks of this meeting be given our President for his admirable address." Seconded by *Mr. W. Whittle*, and carried unanimously.

*Mr. Greaves* then read the following report on the formation of the National Veterinary Association, to a meeting of the Provisional Committee of which he, along with Mr. Thos. Briggs, had been appointed.

*Mr. Greaves*, in his practical inaugural address, observed that the President had alluded to a very important subject, and that he having been one of the appointed delegates to attend the preliminary meeting of the National Veterinary Medical Association, held in London in October last, had to report that he, along with his worthy colleague Mr. Briggs, attended. The meeting was composed of delegates from each of the Veterinary Medical Associations in England, Ireland, and Scotland, also the Army and the Colleges. It was unanimously resolved to establish a National Veterinary Medical Association, to hold its meetings once a year at various important centres—the first meeting to be held the day after the annual meeting of the profession in London. The objects of the Association to be to promote and advance veterinary science, to maintain the honour and interest of the veterinary profession. I felt, he added, that it was an object worthy of approval, and one that ought to be cordially supported by all who take an interest in the onward progress of our profes-

sion. It will tend to stir up emulation amongst our best members, it will quicken the life in our profession; it is unquestionably a step in the right direction. I remember the great success of the congress held in London in 1867, it was a concentration of all the Veterinary Medical Associations, the Colleges, and the profession. I also remember that, in 1881, both this and the Liverpool Association stood aloof in consequence of the fact that the congress retained a rule not to allow those members of the profession who held only the Highland Society's certificate to enter upon the same terms as those holding the diploma of the Royal College of Veterinary Surgeons. Now all this is changed, the rule is expunged; there is now no longer any excuse whatever to hold aloof from it. I cannot think but that every wellwisher of his profession will give it his cordial support. The view I take of it is this, that as it will attract and be sustained by the most eminent, active, earnest, and energetic members of each association in the three kingdoms, in fact, by the whole of the profession, much valuable knowledge must be developed by it. It must inevitably raise our status, and by giving us greater power will redound to the honour, credit, and advantage of our common profession, and therefore that this Association should cordially co-operate with it, and render what assistance it can in developing the valuable results which must ensue. It is well known the high importance which is attached to Lancashire; that whatever Lancashire thinks to-day all England thinks to-morrow; this is a proud, an honorable, and enviable character for any county to enjoy; and allow me to say that everywhere wherever I have had the honored privilege of attending meetings throughout England, Ireland, and Scotland, I have done my best to hold Lancashire Veterinary Medical Associations up in their highest position, for the purpose of keeping other provincial associations well to the front. I proposed at the meeting in London that the president and secretary of each association should be elected upon the Council. I want these associations to take the lead, and be co-partners in the concern, to assume their rightful and legitimate position, and not be conspicuous by their absence. The National Veterinary Medical Association can be again a grand success without this association, but I have an implicit belief, and therefore urge that this Association will keep up its dignity and its honour by taking its rightful stand in this laudable movement, and closely associate itself with this band of advanced thinkers. By this and other associations cordially espousing the cause its success will be ensured. Such action does not necessarily tie each member, or any member in fact, to become a subscriber or to attend the meetings. Every one who subscribes 10s. 6d. annually is entitled to attend the annual meetings, and will be supplied with a copy of each paper read and a verbatim report of the discussion which will take place on each and every subject introduced, giving him the most recent, scientific, and valuable information on all subjects

compiled by the most eminent men in our profession. Therefore I beg to move "That this, the first, the largest, and most influential association in the three kingdoms, espouse the cause and decide to co-operate cordially with the National Association with a view to ensure its success."

This motion was seconded by *Mr. Briggs*, supported by *Mr. Fleming* and many other members, and carried unanimously.

*Mr. George Fleming*, *Mr. Briggs*, and other gentlemen followed, and pointed out and advanced the claims of the new Association.

This concluded the business of the meeting. The company then adjourned to dinner, and a most enjoyable evening was spent.

JOHN B. WOLSTENHOLME,
*Hon. Secretary.*

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THE usual quarterly meeting of the Association was held at the Blackfriars Hotel, Manchester, on March 14th.

Mr. Wm. Woods, President, in the chair. There were also the following members present, viz. Messrs. Peter Taylor, Thos. Greaves, Wm. Whittle, T. Hopkin, H. Ferguson, Wm. Leather, S. Locke, E. Faulkner, W. A. Taylor, W. Dacre, Jno. Lawson, J. Hart, T Briggs, T. B. Cockshoot, J. W. Ingram, A. M. Michaelis, E. H. Leach, Jno. Litt, and J. B. Wolstenholme. Also visitors, Messrs. A. Leather, F. F. Crawford, Wormald, Horrocks and Rice.

The minutes of the last meeting were read and confirmed, and the letters of excuse presented.

*Mr. S. Locke* proposed that "Mr. Ed. Kitchen, of Liverpool, be a member of this Association," seconded by *Mr. W. Leather*, and carried unanimously.

The *Secretary* nominated Mr. Horrocks, M.R.C.V.S., of Burnley.

*Mr. Peter Taylor* then moved that "The earnest and warmest thanks of this Association be given to Mr. William Whittle for the able and attentive manner in which he has represented our interests in the Council of the Royal College of Veterinary Surgeons." This was appropriately seconded by *Mr. Greaves*, and carried unanimously.

*Mr. Whittle* having replied, the *President* brought forward the subject for the evening's discussion, *i.e.* "The buying and selling of horses and their examination as to soundness," as introduced by Mr. Hopkin in a paper read at the last ordinary meeting. A very interesting and lengthy discussion followed, in which nearly all the members present joined, and every shade of professional opinion was represented; Mr. William Leather drawing particular attention to the examination of the molar teeth, by exhibiting the lower jaw of a cart horse in which was a supernumerary molar associated with caries.

*Mr. Hopkin* replied, and then related a case in which a cart-horse was injured behind the scapula with the point of a shaft in collision. The only apparent mischief was a small flesh wound in the triceps extensor muscle, and the horse continued at work for some time. Ultimately, however, the respiration became seriously affected if put to any exertion, although in the stable the breathing was normal; the chest was resonant on percussion, and the respiratory murmur audible on auscultation. On one occasion the temperature reached 103° F., and the pulse remained at about 50; the horse continued to eat well and was lively. In the end he was destroyed, and the autopsy revealed the presence of a large quantity of serous fluid in the mediastinum, which had forcibly compressed the lungs against the ribs, to which they were adherent; periostitis and some ostitis had evidently existed in the fifth and sixth ribs from their condition in the specimens shown.

*Mr. Greaves* proposed that "A vote of thanks be given to Mr. Hopkin for his valuable paper." This was seconded by the *President*, and carried unanimously.

JOHN B. WOLSTENHOLME, *Hon. Sec.*

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## NORTH OF ENGLAND VETERINARY MEDICAL ASSOCIATION.

THE quarterly meeting of this Association was held in the County Hotel, Newcastle-upon-Tyne, on Friday, 23rd February, 1883, Mr. H. Hunter, President, in the chair.

*Present*:—Mr. J. B. Nisbet, Fence Houses; Messrs. G. M. Mitchell, and D. Dudgeon, Sunderland; Mr. W. J. Mulvey, Bishop Auckland; Mr. J. E. Peele, Durham; Mr. D. McGregor, Bedlington; Mr. W. Wheatley, South Shields; Mr. W. Awde, Stockton-on-Tees; Messrs. C. Hunting, and C. S. Hunting, South Hetton; Mr. A. Chivas, Corbridge; Mr. W. S. Pringle, Gateshead; Mr. W. Grieve, Blaydon; Messrs. C. Stephenson, A. Hunter, W. W. Smart, W. Hunter, J. H. Wilson, and the Secretary, Newcastle-upon-Tyne.

Visitors, Mr. Stephenson, Sunderland; and Mr. Blanch, Thornley.

Letters of apology for non-attendance were read from Professor Walley, Messrs. T. Foreman, M. Hedley, H. Peele, and W. G. R. A. Cox.

The *Secretary* read a letter from the Secretaries of the National Veterinary Medical Association, asking support of this Association, and to obtain their assistance in furthering its objects, and completing its formation. He (Secretary) would be most happy to receive their subscriptions, and hoped every member present would join. Undoubtedly it was a step in the right direction and ought to receive our unanimous support.

The minutes of the preceding meeting were taken as read.

The following gentlemen were then unanimously elected members of this Association, Mr. G. E. Nash, Richmond, Yorks; Mr. J. Fairbairn, Alnwick, and Mr. W. G. R. A. Cox, Newcastle-upon-Tyne.

*Mr. G. M. Mitchell* nominated Mr. Blanch, of Thornley, as a member of this Association.

The following gentlemen were then unanimously elected officers of the Association for the ensuing year. President, Mr. McGregor, Bedlington; Vice-Presidents, Messrs. J. E. Peele, Durham, and G. Elphick, Newcastle-on-Tyne; Secretary and Treasurer, Mr. W. W. Smart, Newcastle-upon-Tyne.

*Mr. C. Stephenson* then moved the following resolution:—"That the Examiners having full power to test, in any way they think proper, both the theoretical and practical knowledge of the students, compulsory pupilage is not only unnecessary, but would be positively injurious to the best interests of the profession," and in doing so said:

Gentlemen,—You all know that harm is sometimes done by over-doctoring our patients, I am afraid our profession is now being over doctored by our "Parliamentary Committee." You also know that I honestly opposed the Veterinary Surgeons' Bill that was recently passed by a fluke, and that in doing so, I received a good deal of blame and even abuse. That Bill being now the law of the land, it is not my intention to say anything about it, except, that those men who will "strain at a gnat" (the unqualified practitioner) "and swallow a camel" (the Bill with all its troubles) must suffer the consequences, namely, severe and prolonged indigestion as shown in the troubles of the Registration Committee and the provincial societies. There are only about 1000 applicants for registration, and they will be replaced by a constant supply of the same material under another name.

Gentlemen, since the passing of the Act I confess I have not taken so much interest in the profession as formerly; but I cannot now resist the opportunity of opposing to the best of my slender abilities the *compulsory* pupilage clause of the proposed new charter. I am sure we all agree as to the great value of practical knowledge, and I do not think any of us will object to pupilage, but I hope and believe there are many amongst us that will honestly object to it being made compulsory. No hard and fast line should be laid down as to how a man is to obtain his practical knowledge—it cannot be done, simply because our opportunities and abilities vary. Let the wealthy pay for pupilage—but do not let us place obstacles in the way of the poor but enthusiastic lad, who looks upon the veterinary profession as the height of his worldly ambition, and who although lacking the ordinary means and opportunities will assuredly press forward and obtain information equal, perhaps superior to his more favoured contemporary. I would ask you

to bear in mind that compulsory pupilage is not required in the medical profession, their students' practical knowledge is tested at the examination, and if it can be done by them, how much easier may it be done in our profession, where there is no lack of subjects and patients. I would ask you to look back and try to remember all your old student friends, and then say, if those who had been pupils stood out far ahead of their fellows, did they excel in practical knowledge, and did they make the most useful members of the profession, or is it not a fact that those who struggled against adverse circumstances, had neither time nor money to devote to pupilage, but were filled with determination and enthusiasm, eventually made not only good veterinary surgeons, but in some cases became bright stars in the profession. Many are afraid of non-qualified practitioners, well gentlemen, I know of no better nursery for their production than compulsory pupilage.

Gentlemen, my whole heart is in this question, I can never forget my own early struggles; I could talk to you for a long time, but I refrain, knowing that Mr. Smart's paper is before you, but I appeal to you, nay I beseech of you to remember the poor struggling lad, do not put unnecessary obstacles in his way, there are quite sufficient already. I have further to appeal to you on behalf of those who from their early training, it may have been on a farm, or in a forge, or from a natural love and consequent study of animals have gained a large amount of good solid practical knowledge, more in fact than is generally learnt by pupilage; to these men, I say compulsory pupilage is not required and would be a positive hardship.

Tax the student's brains, but not his pockets; there is no royal road to learning. Let the examinations be as stiff and prolonged as is thought necessary, no one can object to that, it is a sure and legitimate way of testing the student's fitness to enter the profession, which a certificate of pupilage can never be. Finally, gentlemen, do not let us lend a hand to kick down the ladder by which many of us have reached our present position. (Applause.)

*Mr. D. Dudgeon* had great pleasure in seconding the resolution, and said: To make pupilage compulsory would, in his opinion, be injurious to the profession, and hoped this meeting would endorse the resolution.

*Mr. Mulvey* hoped the members present would support the resolution. The Royal College of Veterinary Surgeons had no right to ascertain where a pupil had obtained his practical knowledge; but, in his opinion, they ought to enforce a rigid practical examination, and there was no obstacle in the way of their doing so. We had greater facilities than the medical profession.

*Mr. Mitchell* had great pleasure in supporting the resolution, and, in his opinion, compulsory pupilage would be an infringement of our rights if it were enforced, and many an able man,

for want of funds, would be prevented from becoming a veterinary surgeon.

*Mr. C. Hunting* agreed with all that Mr. Stephenson had said, and would support the resolution.

The *President* said the gentlemen that were bringing this question of compulsory pupilage forward had the interests of the profession at heart, and were undoubtedly trying to do their best for the good of the profession. In his opinion, if the Examiners could not test the students thoroughly pupilage ought to be enforced.

*Mr. D. McGregor* had much pleasure in supporting the resolution, and said we ought to use every endeavour to stop compulsory pupilage.

*Mr. A. Hunter* agreed with Mr. Stephenson, if the practical examination could be thoroughly carried out, and would make the examination as severe as possible.

The resolution, on being put to the meeting, was carried unanimously.

Proposed by *Mr. Mulvey* and seconded by *Mr. A. Hunter*, that a copy of the resolution be sent to the Council of the Royal College of Veterinary Surgeons.—Carried unanimously.

After considerable discussion on the next election of members of Council of the Royal College of Veterinary Surgeons,

*Mr. Mulvey* proposed and *Mr. Chivas* seconded, that Mr. Clement Stephenson be nominated for election to represent this Association as a member of Council.—Carried unanimously.

It was also proposed and carried unanimously, that the Secretary write to the different Veterinary Medical Associations, asking their support and co-operation to assist in returning their nominations as members of Council.

*Mr. W. W. Smart* then read the following essay on "Pleuro-pneumonia Contagiosa:"

Mr. President and Gentlemen,—The subject I bring before your notice this afternoon is one replete with interest to the veterinarian at all times, but is, perhaps, more particularly so just now to the members of this Association, in consequence of the recent outbreak in this district; and when we take into consideration the fact that in former times in this country this malady has destroyed more cattle than any other disease, and when we bear in mind the enormous sums of money that are paid as compensation for animals slaughtered whilst suffering from the disease, or in consequence of having been in contact with animals so suffering, I think it behoves us to do our best to understand the nature of the malady, and to use our utmost endeavours to stamp it out, or at all events as far as possible to limit its ravages.

The disease is known technically as pleuro-pneumonia epizootica, pleuro-pneumonia zymotica, or pleuro-pneumonia contagiosa, and is locally known as pleura, lung disease, lig, lung

murrain, &c. It is believed to have originated in Central Europe, and from thence it has travelled nearly all over the world; but, perhaps, as is the case with other contagious diseases, notably cattle plague, it assumes a more virulent form in this country than it does in the countries where it is supposed to have first originated, for I have several times seen foreign animals—even while suffering from the disease in an acute form—in very fair condition, and not exhibiting nearly such distressing symptoms, as are shown by English cattle under similar circumstances. I believe it is the general opinion that it does not originate spontaneously in these islands. We occasionally hear of cases which are supposed to be of spontaneous origin; but probably, if the outbreak were thoroughly investigated and the career of each individual animal in the herd traced, the cause of the outbreak might be accounted for, but this strict investigation is a matter of very great difficulty, not only on account of it being frequently impossible to trace back the career of each individual animal, but also from the fact that the owners or attendants of the animals cannot always be persuaded to speak the truth respecting their charges.

By many veterinarians the disease is thought to be transmitted by cohabitation only, but I am somewhat opposed to this theory, as I am not aware that it has yet been satisfactorily determined what that period of cohabitation must be, nor the exact distance that must exist between diseased and healthy animals, in order that the disease may be transmitted from the one to the other, and if, as is generally supposed, the infective poison is of an extremely volatile nature, I fail to see why it cannot be conveyed by the air, or by foreign substances with which it may come in contact, and I am confirmed in this opinion by the fact that the Order in Council passed for the suppression of this disease provides for the destruction of all dung, fodder, and litter that has been in contact with a diseased animal, and also for the burial of a carcase of an animal that has died from the disease. Surely this would be unnecessary if it had been conclusively proved that the disease was transmittible by cohabitation only, and during the animal's life.

The various writers on the subject couch their definitions of the disease in various terms; they all, however, appear agreed that it is a contagious fever, peculiar to the bovine species, and due to a specific poison, which manifests itself by exudations from the pleura and in the substance of the lungs, and having a period of incubation of from fourteen days to a time not yet definitely known. The general symptoms will be so well known to all the gentlemen present that I do not propose to take up your time by describing them in detail, but I shall have to mention some of them when noticing the diseases with which pleuro-pneumonia contagiosa is most easily confounded, and probably the disease with which it is most easily confounded is tubercular phthisis; in fact I think there are cases where, in the absence

of any history to guide him, even the most skilful veterinary surgeon may have great difficulty in arriving at a correct diagnosis during the animal's life; it is, however, of the greatest importance that we should be able to distinguish between the two, and this is one of the points I should particularly like to hear discussed by the gentlemen present.

I think that in tuberculosis the cough is neither so frequent or so painful, nor is there so much tenderness shown upon pressure being applied to the animal's back and sides as in pleuro-pneumonia contagiosa; and although in both diseases auscultation will reveal either an absence of respiratory murmur, or else abnormal sounds within the cavity of the chest, yet on percussion the dull and "thud"-like sound produced is more marked in pleuro-pneumonia contagiosa than in tuberculosis. Again, animals affected with tuberculosis do not so often emit that involuntary grunt which is so frequently met with at each expiration in pleuro-pneumonia contagiosa, and in milch cows the lacteal secretion disappears or is diminished in quantity much more suddenly in pleuro-pneumonia contagiosa than in tuberculosis. I do not think the thermometer is of much use in enabling us to diagnose between the two diseases, as in both there is an elevation of temperature.

Animals affected with filaria or with hoose, as it is commonly termed, have occasionally been thought to be suffering from pleuro-pneumonia contagiosa, but hoose is usually confined to young animals; there is an absence of the grunt, and the cough is the moist cough of bronchitis rather than the hard, dry cough of pleuro-pneumonia contagiosa, and in hoose there is usually a quantity of frothy saliva or mucus in and around the mouth, in which the filaria or their eggs may be detected, and in this disease the thermometer does not register nearly so high a temperature as in pleuro-pneumonia contagiosa. Foreign substances in the lungs often give rise to symptoms somewhat simulating those of pleuro-pneumonia contagiosa. A case recently came under my notice in which a cow during life showed several such symptoms, but a *post-mortem* examination revealed the presence of several pieces of wire embedded in the substance of the lungs.

An animal affected with pleurisy may present many of the symptoms of pleuro-pneumonia contagiosa, but here the pulse is hard and bounding—not weak and feeble, as in pleuro-pneumonia, and the animal evinces great pain when made to turn round suddenly. Occasionally, too, cases of indigestion when accompanied with a grunt have been mistaken for pleuro-pneumonia contagiosa.

A great difference of opinion exists among authorities as to what particular portion of the lung is primarily attacked by the disease, some holding that it is the mucous membrane of the bronchi; others the connective tissue or the lobules; while others hold that the pleura is the seat of the earliest lesion. In

examining a portion of lung when taken from an animal in an early stage of the disease it is in the connective tissue that we find the greatest amount of exudation, and I therefore think it is probable that it is from the vessels of the connective tissue that the exudate is first thrown out.

Upon making a *post-mortem* examination of an animal that has been slaughtered while suffering from the disease in an early stage, we shall probably find a small quantity of fluid in the cavity of the chest; the pleuræ will not have undergone any very marked changes, but may appear slightly elevated in patches, which elevation is caused by the effusion of serum into the connective tissues lying beneath it, and on the surfaces of the pleuræ may be a slight exudation of lymph; the lung is increased in weight, and upon cutting into it the parenchyma will be found to be darker than is natural, and studded with minute red spots; these red spots being the cut ends of the engorged capillaries and the interlobular tissue will be found charged with a serous effusion, which when examined under a high microscopic power is said to contain a number of minute living organisms moving in a rotary direction. These changes in the lung tissue will not be present throughout their entire substance, but in a patch or in isolated patches, the peculiarity of the inflammation of this disease being to attack groups of lobules or a single lobule lying some distance apart. Thus we may have a portion of diseased lung, and at a distance of several inches another diseased portion, the intervening lung tissue being healthy; in this respect it differs from the sporadic inflammation of the lungs in which the whole substance of the lung is attacked, the lymphatic glands and the lymphatic vessels will be increased in size and loaded with fluid. In this stage the blood-vessels will be empty and the smaller bronchi filled with a frothy material, consisting of serum mixed with air; it is in this stage of the disease that some operators say is the best time to take for inoculation the lymph which exudes from the cut surface of the lung.

Upon making a *post-mortem* examination of the lungs of an animal suffering from the disease in a later stage the morbid changes are much more marked; the mucous membrane of the trachea is darkened in colour, and thickened in consequence of the exudate existing beneath it; the lymphatic vessels will be filled with lymph, and their coats considerably thickened; portions of the lung will feel hard to the touch, and the lungs will be attached to the ribs and the diaphragm by false membranes. In the cavity of the chest there will be a quantity of yellowish fluid, in which float flakes of fibrin. This fluid is varying in quantity; there may be but little or there may be several gallons, and it is this difference in the quantity of fluid found in the chest that causes butchers to speak of an animal as being a "wet lunger" or a "dry lunger." This fluid contains a large quantity of albumen, and coagulates upon expo-

sure to the atmosphere. Upon the surface of the pericardium and upon the surfaces of the pleuræ are deposits of lymph, which form the false membranes, by which the lungs are in places attached to the sides and the diaphragm. These false membranes are yellow in colour, friable, and easily broken down. Upon stripping off the lymph from the pleura pulmonalis the surface of the lung is seen to be rough and studded with papillæ-like bodies, and upon stripping off the pleura costalis the intercostal muscles appear to be pale in colour and dropsical; the lung is increased in bulk and in specific gravity, and a diseased portion sinks immediately if thrown into water. Upon cutting into the lung substance it presents a marbled appearance, the lobules being of a darker hue than the connective tissue, and from the cut surfaces of the lung there exudes a great quantity of serum. The parenchyma is dark in colour and solid; the air-cells and smaller bronchi obliterated by being plugged with lymph; the blood-vessels are filled with coagula, and the capillaries are ruptured, the contents of which escape and discolour the tissues, causing what is known as red hepatisation. The lung structure surrounding the diseased portion is darker in colour and more solid than natural, the interlobular tissue being more clearly defined, and giving it a somewhat mottled appearance. This mottling is caused by the infiltration into the connective tissue between the lobules of the exudate from the adjacent diseased portion, and it is from this part of the lung that the lymph used in inoculation must be taken if no opportunity occurs in procuring it from lungs in an early stage of the disease.

In severe cases death results from apnœa, consequent on the non-oxidation of the blood by reason of the changes in the lung tissue, or in a long-standing case the animal may die from anæmia or from pyæmia, caused by the absorption into the system of the diseased products from the lungs. Pericarditis is a frequent complication of pleuro-pneumonia contagiosa, there usually being effusion into the pericardium, which effusion —if the animal partially recovers—may become organised, and form false membranes, or it may degenerate and cause an accumulation of pus in the heart's sac.

Some cases do not proceed to a fatal termination, for in many instances recovery, or rather partial recovery, may take place, for a lung once attacked with pleuro-pneumonia contagiosa never resumes its normal appearances or functions, the diseased portion undergoing one of the following changes:—If the progress of the disease is arrested at an early stage, the exudate becomes lowly organised and converted into a fibrous substance, which may afterwards undergo softening and cause abscesses in the lungs, or, if the disease be arrested at a later stage, a quantity of lymph is thrown out from the neighbouring healthy lung tissue, which lymph becomes organised, forming a wall round the diseased portion, which after a time becomes detached, and

this encysted portion may remain in this condition for a long time. Such cases are of far more frequent occurrence than is generally supposed, and are generally overlooked in consequence of the animal feeding and doing well. I think, however, that it is from these cases that much of the danger to healthy animals springs, for it is possible that an animal whose lungs are in this state is capable for a considerable time of transmitting the disease, especially when the portion of encysted lung is in the immediate neighbourhood of a large air-tube; indeed, it is possible that such an animal may from itself become infected a second time, and it is very likely that to cases of this kind many of the outbreaks are referable which are supposed to originate spontaneously; and it shows the importance of carefully examining the lungs of all the animals that may have been slaughtered in consequence of having been herded with diseased animals, for by so doing we may occasionally arrive at the cause of an outbreak, the origin of which we have been previously unable to trace. Cases of this kind have recently come under the notice of Mr. Stevenson and Mr. Dudgeon, who has kindly brought a portion of the lungs of an infected animal for your inspection. It is of great importance that we should be able to distinguish correctly between a portion of lung so encysted and tuberculosis. In a case of pleuro-pneumonia contagiosa the encysted portion is enclosed in a well-defined sac, and shows but little tendency to undergo degenerative changes; it is said never to undergo calcareous, and not in many instances caseous, degeneration, and for a long time its lobulated character is distinctly visible upon making a section, while with tuberculosis, in addition to the deposit in the lungs, we shall most likely, if we make a careful examination, discover additional tubercular deposits in other parts of the body.

It is an important but much disputed question as to whether the flesh of an animal that has been slaughtered whilst suffering from pleuro-pneumonia contagiosa is fit for human food. I think that the simple fact of an animal having suffered from the disease, even at the time of slaughter, does not necessarily unfit it for food, provided always the carcase—to use a butcher's term—"dries well," and the flesh is of a good colour and firm in texture; but I know some inspectors of meat who hold a different opinion, and who, if they find the lungs affected, condemn the carcase irrespective of the appearance of the flesh. There are cases where the animal was in a sinking condition, and was perhaps at the time of slaughter upon the point of dying from pyæmia, where of course it would not be advisable to use the flesh for food; but, as I said before, I think it is by the quality of the meat itself that we should be guided as to its fitness for food. I think this meat question is one that should be referred to the educated and duly qualified veterinary surgeon instead of being left in the hands of the individuals it usually is at the present time, and I hope the day is not far distant when

veterinary surgeons will be universally employed by the authorities in advising what meat is fit for human food and what is not.

I do not intend to touch upon the treatment of the disease, as by the existing orders of the Privy Council Office the slaughter of infected animals is compulsory, and not only is the slaughter of the infected animals compulsory, but powers are given to local authorities to order the slaughter of all cattle that have been in the same shed or herd with animals so affected, and to pay compensation for the same out of the local rates. Unfortunately it is not every local authority that will avail themselves of these powers, some contenting themselves with the slaughter of the actually affected animals only; but I think it is only by the slaughter of the whole herd that we shall ever stamp out the disease, and I think that all veterinary surgeons who act in the capacity of professional advisers to local authorities should impress upon their employers the advisibility of availing themselves of the powers to slaughter conferred upon them by the Privy Council Office.

From time to time various medicinal agents have been given to cattle with a view of preventing the disease, seemingly, however, without producing the desired result. Setoning, rowelling, and bleeding have also been had recourse to, and have also failed; inoculation has also been largely practised, many veterinary surgeons of large experience believing in its efficacy and advising its adoption, while on the other hand many deny that it is a preventative. Those who practice it say that it does not produce pleuro-pneumonia contagiosa, but produces a change in the animals' system, which renders them incapable of contracting the disease, and direct that it be performed by inserting as a seton in the underneath surface of the tail, about two inches from the tip, a small piece of tape or worsted saturated with lymph taken from the lungs of an animal affected with pleuro-pneumonia contagiosa; and that in about ten or twelve days after the operation, if there is an exudation of lymph from the skin near the seat of the operation it is a proof of successful inoculation, and that the animal is safe from an attack of the disease. The great objection to inoculation is that frequently an unhealthy sore is formed at the seat of the operation, sloughing takes place, and the animal loses a portion, and in some instances the whole, of the tail; and that occasionally, if the animal is not in a good state of health at the time of the operation, the inflammatory fever set up is so great as to endanger the animal's life; the loss from the latter cause, however, it is said, need not exceed one per cent. if the operator is careful in his selection of lymph, and the animal is carefully attended to and not injured by bruises after the operation. As a further means of prevention, I would suggest that when pleuro-pneumonia contagiosa makes its appearance in a herd, and the local authority does not insist on the slaughter of all the animals, that the

temperature of each individual animal be taken daily, and if in any case the temperature rises over 102° F. the animal be isolated, and as we do not know the exact stage of the malady at which an animal becomes capable of transmitting the disease, it is just possible that by isolating animals immediately there is a rise in temperature, and by the free use of disinfectants, that we might limit the ravages of the disease, in a short paper like this it is impossible to give the full consideration such an important subject deserves, but the time at our disposal is short, and I think that we derive much more benefit from a discussion than from listening to the opinions of any one individual, but I trust that the few remarks I have put together will lead to a discussion, from which we shall all derive some benefit.

A very interesting discussion followed; the chief bone of contention being "How was the disease transmitted; by cohabitation or mediate contagion?" The subject being very interesting and highly important, further discussion was adjourned until the next meeting.

Mr. D. Dudgeon exhibited some very interesting specimens of pleuro-pneumonia contagiosa recently affected, showing well-marked traces of old-standing disease.

A hearty vote of thanks to the essayist and to the retiring President brought a very enjoyable meeting to a close.

GEORGE ELPHICK, *Secretary.*

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## SCOTTISH METROPOLITAN VETERINARY MEDICAL ASSOCIATION.

THE annual meeting was held in the London Hotel, Edinburgh, on February 14th, the retiring President, Mr. C. Cunningham, Slateford, in the chair.

Present:—Professors Walley, Lewis, M'Fadyean, Baird, Lewis, and M'Queen; Messrs. Philips, Cameron, Boyd, M'Arthur, Mitchell, Storie, W. O. Williams, Aitken, Moir, Constable, Thompson, Donald, Connachie, Robinson, senr., Borthwick, Fairbairn, Hutton, M'Farlane; Professor Hunter, a number of students, the representatives of the press, and the Hon. Secretary.

The minutes of the previous meeting having been approved, the *Hon. Secretary* and *Treasurer* (Mr. R. Rutherford) reported that during the past year they had increased their membership by nineteen, three of whom were admitted that day. The Society was entirely clear of debt, and they had in the bank £23.

The office-bearers for the ensuing year were elected as follow:—President, Mr. C. Philips, A.V.D., 3rd Dragoon Guards; Vice-Presidents, Mr. John Storie, East Linton; Principal Walley and Professor Lewis, Edinburgh; Hon. Secretary and Treasurer, Mr. Rutherford.

The following gentlemen were elected members:—Mr. Johnstone, Peebles; Mr. Hepburn, Coldstream; and Mr. M'Arthur, Hawick.

The following new members were nominated for election at next meeting:—Mr. C. Philips, 3rd Dragoon Guards (at present an honorary member of the Society), and Mr. Clark, Secretary of the Scottish Central Veterinary Association.

The retiring President then delivered his valedictory address, in the course of which he remarked that the year 1882 had been an interesting one for the Society, and they had made satisfactory progress. He reviewed the work of the Association for the past year, and glanced at the different papers that had been read, speaking at some length on the importance of paying careful attention to the treatment of pink-eye, and illustrating his remarks by a case that had come under his own observation. In vacating the chair, he urged the Society to do what they could to secure the election of Mr. Robinson, Greenock, and Mr. Borthwick, Kirkliston, as Scotch representatives on the Council of the Royal College of Veterinary Surgeons.

*Mr. Philips*, the newly elected President, having taken the chair, returned thanks for the honour conferred on himself and the Army Veterinary Department by his election as president. He would spare no personal exertions to follow in the footsteps of his worthy predecessor, and he hoped that when he quitted office it would be found that the Association had not retrograded, that it had not even stood still, but that it had advanced, in accordance with its motto, which was the promotion of amity among its members, the elevation of the social standing of the profession, and the discussion of scientific topics. (Applause.)

*Principal Walley* suggested that the members should look over the rules of the Association and see wherein they might be improved, so as to place the Association on a still better footing. He also brought under the notice of the meeting the case of the widow and family of a veterinary surgeon in Ireland who had been left destitute through the sudden death of the husband and father, who had been a student at Dick's Royal College, Edinburgh; and he invited subscriptions towards their assistance.

The meeting then proceeded to discuss the paper read at last meeting by Mr. H. Thompson, Aspatria, on "Salt on Land as a Preventive of Parasitic Diseases."

*Mr. Thompson* opened the discussion with some supplementary remarks on his paper. Principal Walley and Mr. Pottie had thought his statements at last meeting too sweeping; but, sweeping or not, they were facts founded on close observation for the last thirteen years. He had watched the effects of something like 5000 tons of salt applied to land, and he found that practically it had the prophylactic power of preventing such diseases as red water, fluke, louping-ill, hoose in calves, &c., which, notwithstanding Professor Lewis's idea, were more or less due to micro-organisms in the blood, at least, if they were to take the

opinions of Pasteur and others, that was the case; and the views of these authorities on the germ theory were confirmed by the results obtained from the application of salt to land as a preventive of these diseases. In his practice he had a seaboard of over sixteen miles on the banks of the Solway, where sheep and cattle were kept and did well on short and scanty herbage, without showing the least symptom of parasitic or blood diseases. In fact, so well was it known among the sheep breeders in the Fell districts, that when they brought their flocks down from the hills to winter, they liked to get them as near to the sea as possible, their losses being so few compared to what they suffered from sickness—braxy—when the stock was folded on inland pastures. Pasteur and other eminent microscopists had demonstrated that certain diseases were due to the presence of small organisms in the blood, and in some cases the disease was brought to the surface of the ground by the earth-worm from the buried carcase of a diseased animal. Mr. Thompson proceeded to say, for the past thirteen years I have been advocating the application of salt to grazing lands as a preventive of these so-called blood diseases; and the microscopic experiments having brought to light that these diseases are due to micro-organisms in the blood, gives one some idea as to how the salt establishes its action. Before disease can be established, the fluids and solids of the body of the animal must be in a certain condition more or less favorable to the propagation and development of these organisms; the moment the vigour of the vital energy is released or lowered from any cause whatever, the spores of these little organisms spring into life, multiply and flourish; and this brings me to a point wherein salt has a salutary effect, for on examining the analysis of the ash of healthy human blood it is found to contain nearly 55 per cent. of common salt. Now, if it is necessary that the ash of blood requires 55 per cent. of chloride of sodium for the establishment of vigor and tone to the nervous system and healthy functions of the body, it stands to reason that a want of it must lower the tone and relax the functions of the vital powers, and disease be the result. The application of salt to land destroys diseased or coarse, rough grasses wherein may be lurking the germs of insect pests; the grasses die, and in time manure the ground, and fine succulent herbage springs up. Secondly, salt destroys snails and small mollusca. Thirdly, the herbage, through the action of the salt, is of better quality; the animals eat it with more relish, and get into their system certain elements that are necessary for the manufacturing of healthy blood, which acts upon the nerve centres, giving the system full tone and energy, and thereby warding off disease. Fourthly, any excess of salt which may be washed by the rains from the land to the streams, thence to the rivers, will act as a preventive of the fungoid disease affecting the skin of the salmon; and I would here suggest as a preventive the placing of large blocks of rock salt in different parts of the rivers when salmon are affected

with this disease, for I am told that immediately the fish reach the sea the disease is cured. Referring to braxy, about the commencement of November last I was asked by the under-steward of Lord Leconfield of Cockermouth Castle as to the advisability of applying salt to some old laid grazing lands. For several years they lost about 10 per cent. of their sheep, which are brought down from Skiddaw about the beginning of November for wintering, and are returned again in April. Last November about 470 sheep were brought down, and in three weeks four died. Towards the end of November fourteen tons of salt were applied to forty-three acres, and although the sheep had also the run of sixty-eight acres unsalted, they were mostly found on the salted portion, and very rarely on the other. About a fortnight ago they were removed to another part of the farm—very old laid lea—unsalted, and during the fortnight five sheep have died; but while on the salted land, from the beginning of December till the end of January, only one succumbed. They have now brought the sheep back to the salted land, and are preparing to top-dress the very old laid land with salt. Mr. Thompson concluded by reading a letter from a gentleman in Norfolk, who commenced farming near Carlisle some thirty years ago, and who suffered great losses among his flocks from the disease called "cripples," which is analogous to rheumatism. He applied salt to the land, and the disease totally disappeared, and he now attributed the healthy condition of his stock to the free use of salt.

*Principal Walley* said that in the remarks he made on the paper at last meeting he did not intend to challenge Mr. Thompson to a tournament; but as he assumed that all the diseases he enumerated were due to organisms, he had simply stated that there were several diseases which had not been traced to that cause. Some of them were in fact due to malnutrition of the blood, brought about sometimes by improper feeding. There was nothing particularly new in Mr. Thompson's recommendation of the application of salt, because that had been a recognised agent for many years in the prevention of parasitic diseases. There were those present who would remember that the first time he lectured on cattle diseases, there was not one single blood disease that could be traced to malnutrition, at least, in which he did not recommend the use of salt, and not only salt, but lime, to improve the condition of the herbage. Another important element of blood was iron, and he advised Mr. Thompson to recommend its use. Mr. Thompson assumed that red water was due to organisms, but it was simply a disease due to malnutrition of the blood. There was no doubt, however, that salt was not employed so largely as it ought to be in the general management of animals.

*Professor Lewis* said there were several diseases, such as "cripples," red water, and scour, which had never been proved to be due to germs, and these were diseases that Mr. Thompson mentioned as being due to parasites. The mere existence of

germs did not prove that the disease had been caused by these, as they were to be found in all bodies. There was no doubt, however, that salt was one of the most useful agencies they had in preventing disease.

*Mr. Cameron*, Berwick, remarked that Mr. Thompson had said that salt was a preventive of hoose in calves, and he asked in what way it should be applied on well-cultivated land, because he had found hoose occurring in new clover lands on the east coast, where salt was not absent.

*Principal Walley* said he had received the carcases of sheep which had died from parasites while on the east coast of Scotland, and the worst cases of rheumatism that had come under his notice in this country were in animals from that district, where salt must be to some extent.

*Mr. Thompson* said he had never seen salt applied to aftermath whereon young calves were occasionally turned to depasture and contracted hoose, but he was certain that if the land was dressed with salt after the hay crop was cut and before the fog sprang up, it would be an effectual preventive of hoose, which was a parasitic disease. Whatever "cripples" were due to, he knew that salt had cured them; and if properly applied it was also a preventive of fluke.

### *Tubercular Stomatitis.*

*Principal Walley* next read a paper by Mr. A. E. Macgillivray, M.R.C.V.S., Banff, on "Tubercular Stomatitis." The writer insisted that the disease was of tubercular origin, and urged the impossibility of its being merely a phase of diphtheria. After quoting from several authorities, Mr. Macgillivray went on to say that bovine tubercular stomatitis was a disease of infancy, its most typical forms being found in calves under three months old, and most commonly observed inside cheeks, on tongue, gums, &c., and that it originated in the milk supply or from direct contagion. The danger of partaking of milk from tuberculous cows was well known, and it required no stretch of imagination to see the great risk with which calves daily imbibe tubercle-laden milk, their tender age rendering them more susceptible to the inroads of the tubercular virus. Having described the phases of the disease as he observed it in several cases of young calves, and of a calf slipped at seven months, which was affected with this peculiar stomatitis, and the dam of which died from general tuberculosis, Mr. Macgillivray concluded his paper as follows:—The chief point in dispute, during the discussions which have taken place in reference to this stomatitis, is as to whether or not it is of a tuberculous nature. I have always maintained the affirmative; and given, in my opinion, good, sufficient, and reliable grounds for so doing. In every case coming under my notice I have always been able to trace the same, either directly or indirectly, to a tubercular source; and besides, I have over and over again examined, in so far as my knowledge of microscopic inves-

tigation enabled me, the diseased material from the mouths of the subjects of this affection, and the results always tended to confirm my ideas of the tuberculous nature of this stomatitis. More than this, however, at the time I wrote my third communication on this topic, adverting to the impossibility of its being diphtheria, I submitted a portion of the "cheesy material," dug from the tongue of a young calf, to a medical gentleman of extensive experience and undoubted ability in the diagnosis and treatment of diphtheria, and after minutely examining the same under the microscope, this gentleman informed me that, in his opinion, the "cheesy material" was neither more nor less than tubercular matter, and presented no resemblance to any diphtheritic products which ever came under his notice. This was so far satisfactory. There is one thing which we would require to bear in mind when studying the general character and appearance of tubercular deposit on, in, or under the mucous membrane of any part of the mouth, namely, that we cannot expect to see the same typical tubercle as that presented on the pleura pulmonalis vel costalis; this, when we consider the position, exposure, and almost constant movement (or even attrition) of the parts affected, is utterly impossible. On this rock, I have no doubt, a great many superficial observers have grounded their erroneous ideas as to the nature of this tuberculous affection of the mouth in juvenile bovines. I have already described my ideas as to the *modus operandi* by which the tubercle virus gains admission to the mucous membrane of the mouth, as also the after consequences; and in connection with this part of the subject I may here state that, in so far as regards calves, the subjects of this stomatitis, I have never met with isolated tubercles imbedded in the muscular substance of the tongue; wherever situated, and of whatever size, the tubercular mass has invariably had connection with the surface, and been quite visible to the naked eye. Around this diseased deposit there is generally, as might be expected, a little swelling and slight inflammatory action; but we have decidedly no general enlargement nor induration invading the tongue where that organ is affected; neither have I ever observed atrophy to accompany or follow this affection in calves. Some writers on this subject deny the prevalence of tubercle in bovine juveniles, or any other juveniles very likely, and on this hypothesis build their denial of the tuberculous nature of this stomatitis. I need scarcely reiterate what I have often already said in reference to the ravages of tubercle in the young of every species—human and brute—for wherever, or in whatever species, the opportunity of infection or contagion by tubercle is afforded, there we will find in such extremely susceptible hosts as juveniles, the ravages of this tubercle most deadly. And in such subjects need we observe that the mucous membrane of the digestive system, from end to end, is the most likely to receive, or become affected by, this fatal virus of tubercle. As bearing on this point, I might refer to the already mentioned

calf, slipped in the seventh month of pregnancy, which was killed while suffering from this disease, and found to be otherwise infested with tubercle. I may also be allowed to state that only this morning I received a note from a friend of mine in the south of England, an M.R.C.V.S., saying that on Saturday last he made a *post mortem* on a pure Oxford Down lamb, which died when three days old, and found its lungs "quite studded with small tubercles;" he adds that he is much bothered with scrofulous disease of the joints and glands in his flock of Oxford Downs, more especially the lambs. Approaching the subject of the treatment of this malady in calves, we are again opposed by the non-tubercular theorists, with the remark that, "If the disease be tubercle, what's the use of treating it? We may get rid of the local lesions externally, but what of the constitutional?" &c. Now, I am quite aware that if one tubercle has fairly a hold of the system, to talk of treating or eradicating the same is simply talking of what no one in their senses would ever propose doing. I may be allowed to remark, however, that in tubercular stomatitis the lesions are not only external and easily got at, but the causative virus has only recently been implanted there from external sources, and very likely has no further hold of the system. Therefore, if for no other reason, I would go in for treatment. But there are other reasons, as, for example, when one is called to treat a calf for a mouth lesion, which is perhaps easily seen to be of tubercular nature, it will not do to shake one's head and, muttering "tubercle," order it to be killed—with perhaps an eye to a *post mortem*. No, I say, treat it at once energetically. On examining your patient, you will find a profuse discharge of saliva, very fetid breath, and, if tongue be affected, mouth slightly open; if anterior part of lower jaw, the contiguous lip will be swollen; if inside cheek, the outside of same will bulge a little, and so on. You now open the mouth, and very likely at once detect somewhere a lesion such as I have already described. Almost invariably the mass of tubercle is confined to one spot; and herein it differs most remarkably from the "new disease," the so-called actinomykosis, in which you find the "nodules or nests" scattered about here and there throughout the entire body of the tongue. Well, having found this lesion or greyish-yellow looking lump, the best plan is to scrape it as thoroughly out as you possibly can, and apply sol. cupri sulph., or tinct. ferri mur., to the remaining ulcerous-looking sore. It will generally be found necessary to repeat this rather rough, but ultimately successful, treatment.

*Principal Walley* said he dissented from some of the views put forward by Mr. Macgillivray. In the case of the Oxford Down lambs alluded to, for instance, it was well known that they could scarcely examine the lungs of lambs without finding tuberculous matter, but that was simply due to the irritation produced by the embryo of the strongylus. He never yet saw tubercle in sheep, and he had always held that ovine stock resisted it.

Granted that the disease of which Mr. Macgillivray wrote was tubercular stomatitis, what was the use of treating it? He held that an animal showing signs of tubercle should be immediately killed, and should not be used either for breeding purposes or for human food. They might get rid of the local lesions, but breeding animals would transmit the tendency to their offspring, and it was better to destroy them at once than try to cure them.

It was agreed to adjourn the discussion on Mr. Macgillivray's paper till next meeting, and on the motion of *Principal Williams* a vote of thanks was in the meantime accorded him.

*Mr. Cameron*, Berwick, said it was desirable that they should know the views of the candidates for their representations at the Council of the Royal Veterinary College.

*Principal Williams* agreed with Mr. Cameron, and said he was seeking re-election to the Council Board at the hands of the Yorkshire Society, and if returned he would do his best to watch over the interests of the profession. He strongly objected to the proposal to increase the examination fees of students, so long as they were, as at present, ample to meet the expenditure and leave a handsome surplus. (Applause.) He looked upon it as simply disgraceful that the Examining Board, composed of men who, like himself, had risen from the ranks, and knew the value of a £5 note, should propose to raise the fees of struggling students, with poor parents, who had nothing but their own exertions to depend on for a livelihood. (Applause.) He thought, however, the number of Examiners should be increased, and they might be doubled without entailing any extra expenditure on the College.

On the motion of *Principal Walley* a vote of thanks was given to the retiring Presidents and Vice-Presidents for their services during the past year.

### *Interesting Cases.*

*Mr. Owen Williams* submitted a specimen of *Echinococcus veterinorum*, one of nine removed from the liver of a horse; and a unique case of *Cœnurus cerebralis*, found in the connective tissue of the thigh of a rabbit, and which was supposed to exist only in sheep.

## ANNUAL DINNER.

The members afterwards dined together, about thirty gentlemen being present. The chair was occupied by the President of the Association, Mr. Philips; and Principal Walley, one of the Vice-Presidents, discharged the duties of Croupier. During dinner, and in the course of the evening, the band of the 3rd Dragoon Guards performed selections of music.

After an excellent dinner, the *Chairman* gave "The Queen and the Royal Family."

The *Croupier* proposed "The Navy, Army, and Reserve.

Forces," for which Mr. Robinson, Mr. Nicholson, and Mr. Macfarlane respectively responded.

*Principal Williams* proposed the health of the retiring President, who had always been a warm worker for the Scottish section of the profession. He spoke highly of the energy and devotion of Mr. Cunningham, and expressed the pleasure with which he had listened to him examining students.

*Mr. Cunningham* made an appropriate reply, in the course of which he said that, while he went in for a united profession, he also desired justice alike for England, Scotland, and Ireland; but when they found that all the Board of Examiners and twenty-eight of the Council resided in England, he thought that a very unfair representation. (Applause.)

*Mr. Robinson* proposed "The Scottish Metropolitan Veterinary Medical Association," mentioning that he was not only one of those who assisted at its inauguration, but he was also one of the founders of the West of Scotland Association, which was the parent of all the others in the kingdom.

The *Chairman* suitably acknowledged the toast, remarking that the profession was rapidly approaching the position it ought to occupy, and the value of the papers and subjects discussed by that and kindred societies was beginning to be felt throughout the country.

*Mr. Thompson* gave "The Schools," and *Professor Lewis* "The Visitors," after which a pleasant evening was brought to a close.

R. RUTHERFORD, *Hon. Sec.*

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## THE NATIONAL VETERINARY BENEVOLENT AND MUTUAL DEFENCE SOCIETY.

A SPECIAL general meeting of the above Society was held at the Grosvenor Hotel, Manchester, on Wednesday, 21st February.

Present:—The President, P. Taylor, Esq., in the chair; Messrs. R. S. Reynolds, Thos. Greaves, Wm. Woods, Wm. Whittle, Thos. Taylor, Geo. Fleming, W. A. Taylor, Wm. Broughton, T. Hopkins, S. Locke, A. Santy, Capt. Russell, T. Briggs, Wm. Leather, C. W. Elam, E. Faulkner, J. B. Wolstenholme, E. H. Leach, and the Hon. Secretary.

The minutes of the last general meeting, as well as the minutes of the various Council meetings held since that time, were read and confirmed.

The *President* having stated the object for which the meeting had been summoned, called on the Treasurer for his financial statement, which was read and approved. Leave was given to the Treasurer to invest in the names of the Trustees a further sum of £600 in Mersey Dock Bonds, thus raising the invested capital to £1900.

The *President*, in moving the alteration of rules, said, I have considered it my duty to call a general meeting to take into consideration the wording of Rule II, *i.e.* "That any Veterinary Medical Association making a grant of £20 or upwards to the funds, shall be entitled to elect one of their members a Life Governor for each £20 voted to the funds."

Now, the Midland Veterinary Medical Association having lost their representative—the late Mr. Carless, of Stafford, whose death we all deplore—claim the right to elect another in his place. My colleagues in office differed with me as to the reading of the rule, and my friend Mr. Greaves submitted it to his solicitor, who also gave judgment against my view.

Having received an invitation to attend a meeting of the Midland Association at Birmingham in January last, at which the consideration of this rule was to form a part of the business, I accepted it and was present, when we had a most interesting discussion on the point. I told the members that the rule seemed to me to be an anomaly, and that a special general meeting should be called to consider the advisability of altering it. The anomaly is this, that a donor of £10 can become a Life Governor for that sum, therefore a society could purchase for £20 two Life Governorships; but for a gift of £20 they were debarred, by the reading of my colleagues, from electing another in the place of the one deceased. To settle the dispute, I now propose to alter Rule II by adding the following after the words for each £20 voted to the funds:—"And in the event of such Life Governor dying, the Society he represented may elect another Life Governor in his place without any additional payment. This alteration to be retrospective."

This alteration I propose with a sincere wish that it may be for the best interests of the Society.

As you have heard from the minutes of our Council meetings, we have defended, settled, and arranged many unpleasant cases, both to the honour and advantage of our professional brethren. Our finances have been called upon for defence and for benevolent purposes, notwithstanding which, after payment of these, I am proud to say that we show a glorious balance of upwards of £2000.

This meeting will not be called upon to elect officers, as, according to our rules, they have still two years to serve. I am pleased to see such a good meeting, and most heartily thank you for your attendance, and at the same time assure you that the most ardent wish of all your officers is that success and honour shall mark our progress.

The motion, having been seconded by *Mr. Wood*, was, after considerable discussion, carried unanimously.

A vote of thanks to the President terminated the meeting.

GEORGE MORGAN, *Hon. Sec.*

## FINANCIAL STATEMENT FROM MARCH 9TH, 1882, TO MARCH 9TH, 1883.

THOMAS GREAVES,
*Hon. Treasurer.*

Knott Mill, Manchester.

### *The Veterinary Mutual Defence Fund.*

| *Cash Received.* | £ | *s.* | *d.* |
|---|---|---|---|
| Balance in Bank 9th Mar. 1882 | 425 | 18 | 11 |
| Subscriptions from members from 9th March, 1882, to 9th March, 1883 | 89 | 15 | 0 |
| Bank interest, June 24th, 1882 | 4 | 16 | 5 |
| Bank interest, Dec. 23rd, 1882 | 5 | 5 | 1 |
| | £525 | 15 | 5 |

| 1882. *Cash Paid.* | £ | *s.* | *d.* |
|---|---|---|---|
| May 22nd, cash to Mr. A. Over, Rugby | 10 | 0 | 0 |
| August 26th, cash to Mr. Wolstenholme | 7 | 0 | 0 |
| 1883. | | | |
| Jan. 13th, 500 application forms | 0 | 8 | 6 |
| March 8th, cash invested in B. D. F. | 400 | 0 | 0 |
| March 9th, Secretary's expenses | 4 | 13 | 7 |
| March 9th, Treasurer's expenses | 0 | 10 | 6 |
| March 9th, cash in Bank | 103 | 2 | 10 |
| | £525 | 15 | 5 |

Amount of subscriptions unpaid £122 17 0

Audited and found correct, March 9th, 1883,
JNO. B. WOLSTENHOLME.

### *The National Veterinary Benevolent Fund.*

| *Cash Received.* | £ | *s.* | *d.* |
|---|---|---|---|
| Invested in Birkenhead Dock | 1300 | 0 | 0 |
| Second amount invested in ditto, March 8th | 600 | 0 | 0 |
| Balance in Bank, 9th March, 1882 | 166 | 11 | 7 |
| Subscriptions from members from 9th March, 1882, to March 9th, 1883 | 1 | 11 | 0 |
| Bank interest to June 24th, 1882 | 1 | 19 | 5 |
| Ditto to Dec. 23rd, 1882 | 2 | 4 | 6 |
| Mersey Dock Coupon, June 24th, 1882 | 25 | 9 | 2 |
| Do., do., Dec. | 25 | 4 | 3 |
| | £2122 | 19 | 11 |

| *Cash Paid.* | £ | *s.* | *d.* |
|---|---|---|---|
| 1882 | | | |
| March 23rd, cash to Widow Keal | 2 | 0 | 0 |
| Nov. 24th, do. to Brown's orphans | 5 | 0 | 0 |
| 1883. | | | |
| Feb. 14th, ditto, ditto | 10 | 0 | 0 |
| March 8th, cash invested in Birkenhead Docks | 200 | 0 | 0 |
| Dock Bonds | 1900 | 0 | 0 |
| March 9th, cash in bank | 5 | 19 | 11 |
| | £2122 | 19 | 11 |

Audited and found correct, March 9th, 1883,
JNO. B. WOLSTENHOLME.

## *List of Subscribers to Benevolent and Defence Fund, from the 9th March, 1882, to 9th March, 1883.*

| | £ | s. | d. |
|---|---|---|---|
| **1882—March.** | | | |
| 15. A. L. Gibson | 1 | 1 | 0 |
| 17. G. Ball & Son | 2 | 2 | 0 |
| 21. Proctor | 1 | 1 | 0 |
| 23. P. M. Walker | 0 | 10 | 6 |
| C. Muir | 1 | 1 | 0 |
| 26. T. Pratt | 1 | 1 | 0 |
| 29. H. Ferguson | 1 | 1 | 0 |
| T. Hopkins | 1 | 1 | 0 |
| 31. T. W. Barling | 0 | 10 | 6 |
| **April.** | | | |
| 27. Joseph Woodger, jun. | 1 | 1 | 0 |
| **May.** | | | |
| 31. E. Stanley | 1 | 1 | 0 |
| **June.** | | | |
| 10. R. Trigger | 0 | 10 | 6 |
| **October.** | | | |
| 30. Schofield | 0 | 10 | 6 |
| **November.** | | | |
| 11. T. Briggs | 1 | 1 | 0 |
| **1883—January.** | | | |
| 3. William Bower | 1 | 1 | 0 |
| J. C. James | 0 | 10 | 6 |
| James Rowe | 1 | 1 | 0 |
| R. Reynolds | 1 | 1 | 0 |
| J. J. & J. Freeman | 1 | 11 | 6 |
| R. Cox | 1 | 1 | 0 |
| Batt & Son | 2 | 2 | 0 |
| Markham | 0 | 10 | 6 |
| W. Carless | 1 | 1 | 0 |
| G. Cave | 0 | 10 | 6 |
| F. G. Samson | 1 | 1 | 0 |
| F. T. Stanley | 1 | 1 | 0 |
| J. H. Goodall | 1 | 1 | 0 |
| G. Newson | 0 | 10 | 6 |
| 4. Overeach | 0 | 10 | 6 |
| M. J. Roberts | 1 | 1 | 0 |
| E. P. Rothwell | 1 | 1 | 0 |
| H. J. Cartwright & Son | 2 | 2 | 0 |
| R. Roberts | 1 | 1 | 0 |
| 9. G. Banham | 1 | 1 | 0 |
| A. L. Gibson | 1 | 1 | 0 |
| S. H. Withers | 1 | 1 | 0 |
| J. Bale | 0 | 10 | 6 |
| E. Nuttall | 0 | 10 | 6 |
| A. G. Thornley | 1 | 1 | 0 |
| T. Collins | 0 | 10 | 6 |
| A. H. Santy | 1 | 1 | 0 |
| **1883—January.** | | | |
| 9. Gregory | 0 | 10 | 6 |
| F. Blakeway | 1 | 1 | 0 |
| 11. C. Morgan | 1 | 1 | 0 |
| 12. R. C. Edwards | 0 | 10 | 6 |
| W. Cawthorn | 0 | 10 | 6 |
| C. Crowhurst | 0 | 10 | 6 |
| J. W. Axe | 1 | 1 | 0 |
| 15. W. F. Peacock | 1 | 1 | 0 |
| 16. Sir Frederick Fitzwygram | 1 | 0 | 0 |
| 19. T. G. Chesterman | 1 | 1 | 0 |
| C. Muir | 0 | 10 | 6 |
| 23. Storrar & Son | 1 | 1 | 0 |
| W. Woods | 0 | 10 | 6 |
| J. Carter | 0 | 10 | 6 |
| William Whittle | 0 | 10 | 6 |
| T. D. Broad | 1 | 1 | 0 |
| 24. Hy. Hogben | 0 | 10 | 6 |
| T. Augers | 1 | 1 | 0 |
| 25. Thomas Walley | 0 | 10 | 6 |
| T. A. Dollar | 1 | 1 | 0 |
| 28. J. Woodger | 1 | 1 | 0 |
| T. Danby | 0 | 10 | 6 |
| E. Price | 5 | 5 | 0 |
| Perrins | 1 | 1 | 0 |
| J. Russell | 0 | 10 | 6 |
| R. Triggar | 1 | 1 | 0 |
| Meek | 1 | 1 | 0 |
| Hill | 1 | 1 | 0 |
| Olver | 0 | 10 | 6 |
| Over | 0 | 10 | 6 |
| Beddard | 1 | 1 | 0 |
| 30. F. W. Wragg | 1 | 1 | 0 |
| H. Blunt | 1 | 1 | 0 |
| A. Rushall | 1 | 1 | 0 |
| **February.** | | | |
| 8. B. Wolstenholme | 1 | 1 | 0 |
| T. Aubery | 0 | 10 | 6 |
| 13. W. Elam | 1 | 1 | 0 |
| J. Ferguson | 0 | 10 | 6 |
| 14. J. M. Axe | 0 | 10 | 6 |
| William Broughton | 0 | 10 | 6 |
| P. M. Walker | 0 | 10 | 6 |
| P. Walker | 0 | 10 | 6 |
| P. Deighton | 0 | 10 | 6 |
| J. E. Scrivens | 0 | 10 | 6 |
| Pyatt | 1 | 1 | 0 |
| Thos. Secker | 0 | 10 | 6 |
| 20. Edwin Faulkner | 1 | 1 | 0 |
| Thomas Greaves | 1 | 1 | 0 |
| 21. P. Taylor | 1 | 1 | 0 |

| 1883—February. | £ | s. | d. |
|---|---|---|---|
| 21. W. A. Taylor . . | 1 | 1 | 0 |
| H. Ferguson . . | 1 | 1 | 0 |
| Tom Taylor . . | 1 | 1 | 0 |
| S. Leach . . . | 0 | 10 | 6 |
| 22. Hy. Thompson . . | 1 | 1 | 0 |

| March. | £ | s. | d. |
|---|---|---|---|
| 5. J. B. Taylor . . | 1 | 1 | 0 |
| 6. J. W. Anderton . . | 0 | 10 | 6 |
| G. Morgan . . . | 1 | 1 | 0 |
| | £91 | 6 | 0 |

# Parliamentary Intelligence.

## GLANDERS.

HOUSE OF COMMONS, *March 13th.*

*The Marquis of Hartington*, interrogated by *Dr. Cameron*, stated that two horses of the 7th Dragoon Guards, one of the Artillery, and six affected with glanders belonging to other corps, had been destroyed in Egypt. These troops were encamped on ground previously occupied by the Bengal cavalry. The question had been referred to India for investigation.

# OBITUARY.

## WM. FIELD.

WE deeply regret to have to record the death of a distinguished member of the profession, one whose name may be almost regarded as a household word—Mr. William Field, late of Oxford Street, London, and Kingsbury House, Middlesex. This melancholy event took place on February 27th, at Bournemouth, in the seventy-ninth year of his age.

Mr. Field entered the profession as a graduated member as far back as 1829, succeeding, on the death of his elder brother, John Field, to the practice which had originally been conducted by their father conjointly with the late Mr. Moorcroft, who for a short time, in 1794, held a professorship in the Royal Veterinary College. This takes us back to the last century, so that by the talent and industry which William Field possessed, it is not surprising that such an old-established practice should have been highly remunerative, and have ranked for many years as the very best in the metropolis.

On the obtainment of the Charter of Incorporation by the profession in 1844, Mr. Field was elected a member of the Council, and also of the Court of Examiners; the latter he resigned in 1863, and the former in 1864. In 1845-6 he held office as one of the Vice-Presidents, and was chosen President of the College in 1854, and re-elected to same office in the following year. In 1877, under the provisions of the supplemental Charter, he became a Fellow of the College, having previously retired from all active duties connected with the practice of his profession, and taking up his residence at Kingsbury.

Ever ready to contribute by his purse to the wants of others, and liberal in his gifts to meet the requirements of the Royal College of Veterinary Surgeons, we are not surprised to learn that he has left by his will £1000 towards a fund to be formed and applied to the building, purchase, or acquisition of suitable premises for the use and occupation of the College, provided a like sum be contributed and paid by other persons, or from other sources, within twelve months of his death.

### D. Gresswell.

We have the melancholy duty of having to add to the above obituary the death of a highly esteemed country member of the profession, Mr. D. Gresswell, of Louth, Lincolnshire. His departure took place very suddenly on March 13th, but not unexpectedly by his medical attendants, as he had for nearly two years been in ill-health, the origin of which was traced to an injury received by a kick from a horse on the abdomen.

We learn from the *Louth Advertiser*, which devotes a column of its pages to his obituary, that Mr. Gresswell was elected a member of the Town Council in 1862, and that at time of his death he held office as an Alderman of the Borough. In November, 1871, the same year that he became Alderman, "he was raised to the highest position it was in his fellow burgesses' power to confer, viz. the Chief Magistracy of the Borough."

Socially as well as professionally he stood high in the estimation of a large circle of friends both in the town and county. They, with his widow and a numerous family, have now to mourn his loss at the comparatively not great age of sixty-three.

Mr. Gresswell entered the profession in 1840, his diploma bearing date June 18th of that year. In 1877 he was elected a Fellow of the Royal College of Veterinary Surgeons, and among the professional appointments he held may be named those of Examiner for Prizes offered to newly-graduated veterinary surgeons by the Royal Agricultural Society for proficiency of knowledge in Cattle Pathology, and Examiner for Prizes offered by Sir Fred. Fitzwygram, Bart., for general scientific acquirements. He had also been recently appointed an Examiner in Cattle Pathology by the Royal College of Veterinary Surgeons. Besides these appointments he was Inspector under the Contagious Diseases (Animals) Act for the Louth Petty Sessional Division, and Local Consulting Veterinary Surgeon to the Royal Agricultural Society. The writer of the article in the *Louth Advertiser* concludes the notice of his death by remarking that "Mr. Gresswell's life was throughout characterised by perseverance, industry, and their universal concomitant—material success."

### R. Hall.

We have also received a report of the death, on the 6th March, at Stockton-on-Tees, of Mr. Robert Hall, M.R.C.V.S., aged 39 years. His diploma bears date April 29th, 1864.

THE

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## Communications and Cases.

### ACTINOMYKOSIS BOVIS.

*(Illustrated by Original Drawings.)*

By J. Wortley Axe, Professor of Pathology, &c., at the Royal Veterinary College.

(*Continued from* p. 233.)

*Bone.*

Actinomykosis, as it affects osseous tissue, is, I believe, rarely seen in any other bones than those of the face. Hitherto it has been described under the terms osteoid cancer, bone tubercle, fibroplastic degeneration, osteo-sarcoma, spina ventosa, osteo-porosis, &c.

Of the facial moities more especially liable to this disorder the superior and inferior maxillæ stand first on the list, after which may be mentioned the turbinated bones, the palatine bones, and lastly the malar, lachrymal, frontal, and nasal bones in the order stated. The great proneness of the superior and inferior maxillæ is most likely referable to their intimate relations with the dental apparatus, and more immediately to the laceration and exposure of the alveolar membrane during the shedding of the temporary teeth. The turbinated bones are especially liable by reason of the frequent infection of the Schneiderian membrane from which the disease extends. I have already pointed out, that this disorder is in a very large majority of instances contracted about the period of second dentition, when the buccal and alveolar membranes are

lacerated in the course of the shedding of the teeth. It is to this latter circumstance, in my opinion, that the usually localised character of the disease is referable. Actinomykosis of the facial bones mostly commences in the vicinity of the teeth, the exceptions to this rule, however, are not a few, and are found in such examples as first appear in connection with the Schneiderian and palatine membranes. The early changes are marked by thickening of the alveolar membrane and rarefaction of the alveolar edges. As the disease advances the bone or bones lose their proper form and present a swollen and rounded aspect, and exceed their normal dimensions. In young animals their growth is arrested, and their natural relations are consequently altered. When several bones of the face are involved at the same time one or more of the neighbouring cavities frequently become encroached upon, and the head presents an enlarged and misshapen appearance. This deformity is due to the mechanical expansion of the osseous texture arising out of an exuberant growth of granulation tissue within it, and the consequent softening, thinning, and solution of the ossific laminæ. The fungating growth may extend into the sinuses of the head, into the mouth or nasal chambers, either by a process of simple atrophic destruction and perforation of bone, or by an intrinsic carious process, or it may likewise reach the various cavities by interosseous growth. This is especially the case in young animals in whom the sutures are still loose and the bones easily displaced. I have seen the palatine sutures of the superior maxillæ, for example, opened out to the extent of an inch by the upward growth of granulation tissue from the palatine membrane, in which case the vomer was completely buried in the new formation and the septum nasi displaced laterally. Loosening and dislodgment of the teeth are common results of actinomykosis of the maxillæ. The latter is usually followed by a filling up of the alveolar cavities with soft, vascular, new growths, or portions of the jaw may be exfoliated with the teeth still in the alveoli. The skin and subtegumentary tissues over the region corresponding with the diseased bone are often much thickened and indurated, and now and again present one or more fungating or fistulous wounds, the latter discharging a fœtid, sanguinolent pus. When examined after maceration the affected bones present a variety of appearances. In some parts they are but slightly rarefied, in others greatly swollen and distinctly porous, while in more advanced cases they are resolved into a coarse network of delicate plates and fibres, in the midst of which portions of bone are loosely suspended. In this condition the ossific structure will break down under the slightest pressure. In parts removed from the destructive foci of inflammation the constructive effects of exalted nutritive action are

seen in the form of tracts of hyperostosis, or thickened and condensed areas of bone.

In certain cases new osseous tissue in the form of one or other of the various osteophytes is developed in the vicinity of the diseased area.

*Facial sinuses.*

Actinomykosis of the facial sinuses is commonly associated with the same disease affecting the Schneiderian, palatine, or alveolar membrane, through which, as a rule, it probably extends. In a case recently forwarded to me by Mr. Wilson, of Berkhampstead, in which the lips, Schneiderian membrane, and palatine layer were all extensively invaded with the endophyte, the floor of the super-maxillary sinuses in the vicinity of the alveoli was covered with fungous granulations arising out of neoplastic proliferation of the mucous membrane. In size they varied from a pea to a walnut, and in appearance and general character they resembled the growths already spoken of in connection with the pharynx and sides of the tongue, &c.

In some instances which have come under my notice, the frontal and maxillary sinuses have been completely filled with the new growth, and the face frightfully distorted.

*Teeth.*

Besides displacement of the temporary teeth which frequently arise out of actinomykosis of the periosteum and alveolar walls, the dental follicles of the rudimentary permanent teeth likewise become involved in the diseased process, as does also the dental pulp, resulting in the more or less complete disorganisation of the two structures.

In Mr. Wilson's case just referred to, the second and third rudimentary molars were found enveloped in the *débris* of granulation tissue and pus elements, supported by an outer, loose, fibro-plastic growth. The teeth themselves were ill-developed, dry looking, and brittle.

*To be continued.*

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## ON THE PRESENCE OF ŒSTRIDEAN AND MUSCIDEAN LARVÆ IN THE HUMAN BODY.

By Dr. Jacobs. (Translated, with Footnote References and Remarks, by Professor Cobbold, M.D., F.R.S.)

(*Concluded from p.* 236.)

Can the larvæ of Muscids prosper in the interior of the human body? Davaine pronounces himself in the negative. To judge

the question one ought to dismiss all the extraordinary cases of trickery and of carelessness [of observation] that have been reported on the subject. They abound. It is necessary, nevertheless, to take into consideration certain facts.*

The larvæ of Muscids have been taken for intestinal worms, those of *Musca domestica* for *Ascaris conosoma*, and that of *Sarcophaga carnaria* for *Ascaris stephanosoma*."

"Hope assured himself that many insect larvæ can support a temperature higher than that of the human body, and admits that these can very well live for a certain length of time in the digestive tube. He has found out twenty-eight cases of the kind. The larvæ were in variable numbers, whether in the stomach or in the alimentary tube. None of them occasioned death, but often symptoms more or less grave."

The larvæ which they have been able to determine are: *Calliophora vomitoria* (one), *Lucilia Cæsar* (one), *Sarcophaga carnaria* (six times), *Musca domestica* (thrice), *Musca nigra* (once), *Musca cibaria* (once), *Elophilus pendulus* (once), and three times larvæ that have not been identified.†

Another fact, published by the Rev. L. Jenyns in the 'Transactions of the Entomological Society of London,' concerns a clergyman, seventy years of age, who evacuated a large number of larvæ on several occasions, extending over a sufficiently long period of time. These larvæ belonged to *Anthomyia canicularis* (Meig.). Professor Laboulbène has observed an analogous fact due to a larva of the same genus but of a different species.‡ The larvæ of *Anthomyia scalaris* (Meig.) has also been observed in a child in Kentucky. The fact is reported by Dr. Judd.§

The bulletins of the Belgian Academy of Medicine state the fact of the presence of larvæ of Anthomyiæ in a young woman,

* I may state that very many instances of the occurrence of insect larvæ in the human body have been brought under my notice. About twelve of these relate to *Anthomyia canicularis* and *A. scalaris*. From the living larvæ thus obtained I have reared the perfect insect.—T. S. C.

† There is manifestly an error here, for the cases determined are really far more numerous. See Hope's elaborate record, which I have quoted in full in my work on the *Entozoa* (1869, p. 416, *et seq.*). Forty-two cases are there cited, and I could supply many more from my own experience.—T. S. C.

‡ This would most probably be *Authomyia scalaris*. See also the Rev. S. Lockwood's interesting paper in the *Medical Herald*, of Louisville, for Feb., 1881.—T. S. C.

§ In the bibliography (No. 40) of my recent treatise ('Parasites,' 1879, p. 275) many other instances will be found quoted. Walker gives no less than eighty species of *Anthomyia*, consequently I think we may well accept Packard's proposal to separate the hairy forms of these larvæ into the separate genus he has proposed (*Homolomyia*). In this connection, as Mr. Fitch has pointed out to me, the interesting facts recorded by Stoltz (*Zeitschrift f. Entomol.*, 1850) should not be passed over.—T. S. C.

and likewise the story of their expulsion. The observation is due to Dr. François, Professor in the University of Louvain, dated 1869. An analogous case is reported in the Proceedings of the Microscopical Society of London for the first year. Another fact is due to Laboulbène and Robin, the larvæ being that of *Faunia saltatrix*. Many of these facts must needs pass unperceived, the presence of the larvæ in the dejections not attracting attention. This explains why the annals of medicine report such a small number of cases.

In 1846 M. Dumeril renders account to the Academy of Medicine of dipterous insects proceeding from larvæ collected in the matters vomited by an invalid who died in 1845. M. Robineau-Desvoidy gave to them the name of *Mydea vomiturationis*.

At length M. Henri Roger and M. Callier have collected from the bodies of afflicted persons certain larvæ confided to the care of M. Davaine, who has described and figured them; but he had not succeeded in rearing them [to the perfect state]. The subsequent labours of Professor Laboulbène have proved that they belong to the *Teichomyza fusca*. He remarks that he did not deal with an insect specially injurious to the human species, and that there were no more of *Teichomyza hominis* than there are of the human Œstrus or of Culex proper to man to the exclusion of animals, wild or domesticated. According to Davaine the larvæ of *Teichomyza* cannot find themselves living in the human body any more than the other dipterous larvæ. Observation on this subject is always accompanied with errors. Dr. Pruvot (the author of the essay from which we quote extracts), in view of combating the opinion of M. Davaine, has from the first made out with great care the microscopic structure of the larvæ of *Teichomyza fusca*, and at length found in the disposition of certain organs a basis of argument proving that these larvæ can live for a certain period in the human body.*

The larvæ of *Teichomyza fusca*, he says, "are clothed with a cuticle, unaffected by chemical agents, and have the body covered with spines, rendering them able to affix themselves to the walls of the stomach. Their tracheal reservoirs assure to them a considerable supply of air. Plunged in an irrespir-

* Dr. Davaine is certainly in error if he thinks no dipterous larvæ can live in the human intestine. Over and over again I have seen specimens taken alive from freshly passed fæces. The *British Medical Journal* for March 24th of the present year contains an abstract of a paper by Dr. Wacker, of Landsberg, Bavaria, on the larvæ of flies found in the human intestine. An interesting case is given where "a vast mass of larvæ," referable to *Anthomyia canicularis*, was expelled by the exhibition of Hungarian mineral water. In this connection the larvæ of other flies are mentioned as liable to be expelled by the bowels, the caterpillar of the common tabby moth (*Aglossa pinguinalis*) amongst the rest. Dr. Wacker's paper is published in the *Aerztliches Intelligenzblatt*.—T. S. C.

able medium, they can resist asphyxia for a long time. At length our experiments have shown us larvæ still living after a sojourn of twenty-eight hours in the stomach of a guinea-pig (Cobaye), and three days in that of a rat." The author of the essay thinks that from his point of view this [immunity from injury] would be applicable to the larvæ of Diptera found in the digestive tube. Some new experiments would be useful and necessary, conducted with all the scientific rigour which these researches require.*

The larvæ of Muscids are not parasites, except the Tachinaires, which one has never encountered in man. They live for the most part in animal and vegetable matters in a state of decomposition. It is not surprising that these insects can deposit eggs on the surface of ulcers of wounds badly dressed, and on pustules of little pocks where the larvæ find the necessary materials for their development. These species, however, do not attack man voluntarily, and one must not even except the *Lucilia hominivorax* (Coq.), which cause such grave injuries at Cayenne and at Mexico.

According to observations worthy of our time one must allow, until the contrary be proven, that the larvæ of Muscids can live and develop within the digestive tube.

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## ON PLANTS IN RELATION TO ANIMALS.

By Professor James Buckman, F.G.S., F.L.S., &c.

(*Continued from* p. 242.)

We have now to notice two orders of plants which are near to the Umbellifers, namely, Araliaceæ and Loranthaceæ. Under the first name we have in the ivy a single species common everywhere in this country.

The second also affords one native species in the interesting mistletoe.

These two plants may be described as follows:

### Araliaceæ.

1. *Hedera helix.*—Ivy.—Leaves evergreen, more or less trilobate. Stems, trailing as they do over banks, or clinging as they do to walls and trees. Flowers in simple dense umbels,

* Dr. Jacobs exhibited a specimen of this insect, which does not appear to be rare in France and Belgium. He remarks that the *Teichomyza fusca* frequents neglected urinaries. As synonymous, he gives *Scatella urinaria*, Robineau-Desvoidy, and *Ephydra longipennis*, Meigen. It is rare in Germany.—T. S. C.

more or less racemose. Calyx of 5 sepals. Corolla of 5 petals. Stamens 5, pistils or styles 2 to 5. Berry fleshy.

LORANTHACEÆ.

2. *Viscum album.*—Mistletoe.—Stem dichotomous or branching in pairs. Leaves *obovate* or lanceolate, with a somewhat blunt point. Flowers usually arranged in threes, unisexual, and diœcious. Male flowers: calyx obsolete, anthers 4; corolla of 4 fleshy petals, united at the base. Female flowers: petals 4, stamens absent. Ovary inferior. Stigma sessile. Berry pulpy, single-seeded.

1. The ivy, from its mode of growth when it closely adheres to the bole of a tree, has been supposed to be parasitic; so Shakespeare viewed it when he makes Prospero say of his brother:

> "The ivy which hid my princely trunk,
> And sucked my verdure out on't."

A careful examination, however, will soon convince the observer that the ivy, though climbing up a wall or about the trunk of a tree, possesses its own distinctive roots at the base of its stem, the adventitious roots by which it fastens into crevices of buildings or in the cracked bark of a tree being used rather for climbing than for procuring sustenance, and as a proof of this, when the root at the base is severed from the climbing trunk, the plant dies, and hence the woodman considers the ivy as an enemy, which it doubtless sometimes is by reason of its constricting the tree, after the manner of tight lacing.

As regards the growth of this plant about old castles, houses, &c., much speculation has been hazarded. We have heard it inveighed against by some that it harbours insects, which are thus introduced to our dwellings, whilst others aver that it pulls a building to pieces. Our own observations lead us to conclude that both these positions are untenable, as we know of no plant that harbours so few insects. True, the luscious juice which is exuded from the open flowers is greedily sought after by the honey-making bee, but neither is the bark or the foliage ever disfigured by being eaten by insects. Again, in so far from its injuring buildings, we consider that it absolutely saves many an old castle from decay:

> Ivy, ever verdant ivy!
> When thou crown'st the battled tower,
> Still thy look is glorious;
> From ruins grey take thee away,
> Away goes all enchantment's power,
> And age is then victorious.

We look, then, upon the ivy as a beautiful conservator of old

buildings, and when we see how it has preserved parts of Corfe Castle, in Dorsetshire, and Tintern Abbey, in Monmouthshire, we cannot but conclude that it adds to the beauty of the scene, while it keeps the walls from crumbling and decay.

Ivy with us has the further charm of being an evergreen, but sometimes, even in England, a hard winter causes it to shed all its leaves, and even occasionally to die. It is so in the United States. No plant is so charming to those who have travelled in England; it was so to Washington Irving, who delighted in the possession of a flourishing ivy-tree growing on the side of his villa, overlooking the banks of the Hudson River, which, on making a pilgrimage to this clever author, we were delighted to find was growing as perfectly as at home. We have some notion that the plant was originally obtained from Melrose Abbey, but, wherever from, the success in its growth and its associations were matters of great pride to Mr. Irving.

Formerly ivy was held in high repute as a medicinal plant, which we shall presently refer to. At present it is esteemed as furnishing, in its berries, a winter supply of food to some of our smaller birds. Sheep, too, will eat the green leaves of the plant most greedily.

Ivy at one time was highly esteemed for many qualities. Mrs. Lankester speaks of it as follows:

"Many virtues were attributed by our forefathers to ivy. Its fruit was regarded as a specific for the plague and similar disorders, for which it was infused in vinegar.

"The whole plant is aromatic, and a very fragrant resin exudes from the old stems when bruised, from which is obtained the chemical principle hederine. Ivy was at one time included in the British Materia Medica, as it was in that of the Greeks, and still is in that of India. The berries are emetic and purgative, and the resin, which is still used in India, is aperient and restorative. It has been used for toothache with success.

"The leaves have a very unpleasant taste; taken inwardly they act as aperient and emetic, but are likewise soporific. In Germany, according to Haller, they are given to children when suffering from atrophy. The juice is said to cure headache when applied to the nostrils. A decoction of the leaves has been used for dying black. The wood, when it attains a sufficient size, is employed by turners in the south of Europe; but it is seldom used here for any purpose but that of whetting the knives of leather-cutters. It is very porous. The ancients supposed that it had the property of separating wine from water by filtration, an error arising from the wood absorbing the colour of the liquid in its passage through the pores. On the Continent at the present time it is sometimes used in thin slices as a filter. The

ivy is sometimes eaten by sheep and horses, but it is not a favourite food. In the 'Winter's Tale' we read of the shepherd who found Perdita, being led to the seaside in the hope of finding two of his sheep, which had strayed 'browsing on ivy.'

"After all the charm of the ivy consists in its unrivalled pertinacity of growth, its rich colour, and its associations with much that is interesting in history. From the days of Pliny it has formed a favourite embellishment of dwelling-houses. In a letter to Apollinaris, the consul, describing his principal seat in Tuscany, represents the trunks of his plum-trees to be entwined with it, and extending so as to connect them together. Hasselquist says that about Smyrna it forms hedges and ornaments to every garden.

"These classical associations may add somewhat to the interest with which we regard our old ivy-grown buildings, but they cannot add to the delight which every lover of nature must feel in contemplating the picturesque beauty with which it clothes every object to which it attaches itself, be it a rugged cliff, a ruined wall, or the dying trunk of an old tree of the forest."*

In Sowerby's 'Useful Plants of Great Britain' we find the following notes on the ivy, which we quote as being among the latest notices we have met with upon the uses of this plant:

"The ivy is one of our latest flowering plants, the blossoms seldom opening before the latter end of October, and often continuing to expand until late in December. The berries, which do not become ripe until the following spring, afford food to numerous birds, especially during severe and snowy winters. They are black or deep purple when ripe, and are then succulent. The ivy was in high esteem among the ancients; its leaves formed the crown of Bacchus, to whom the plant was dedicated, and who was fabled by the Greeks to have changed Cissus into it, a myth which originated probably in the practice of binding the brow with ivy leaves to prevent intoxication, a quality formerly attributed to the plant. It is found over the greater portion of Europe and northern and Central Asia, and is said to have been particularly abundant at Nyssa, the fabled dwelling of Bacchus in his youth. The Romans used the leaves as food for cattle, and their agricultural writers much recommended them; they are not relished here by cows, though sheep and deer will sometimes eat them in the winter.

"The principal value of ivy is as an ornamental plant for covering walls and other unsightly objects. Its disc-like fibres easily attach themselves to any hard rough surface, but will not adhere to smooth plaster or whitewash. It is very hardy, and the leaves are seldom much injured by frost, though in

* 'English Botany,' edited by J. S. Syme, vol. iv, pp. 184-5.

very severe winters the ivy has been occasionally killed in exposed places. The large-leaved variety, called the Irish ivy, originally came from Madeira; it is much more delicate than the wild plant, and does not cling so firmly, and is therefore less adapted for covering walls than the common kind. The plant lives to a great age, and its trunks often attain a considerable size. One on a cottage at Morpeth, in Northumberland, is about twenty inches in diameter at one part of the stem, and ivy trunks of a foot in diameter are to be seen in several places where the plant has been allowed to climb unmolested over rocks or ruins. The flowers afford food to bees late in the autumn, when they can get little other. The broad evergreen leaves give shelter to birds in the winter, and some prefer the ivy to any other shrub for forming their nests in."*

The robin and the wren both build their nests in ivy, and beautiful nests they make, the flexile stems and the long petioles to the leaves seeming to be well adapted for weaving their beautiful dome-like habitations.

Again, the seclusion and secresy are so perfect that the birds are not so often disturbed. Perhaps it was this propinquity in their breeding-places that got the robin and the wren associated in nursery rhymes, as the little brown wren and red-breasted cock robin were ever thought to be husband and wife.

2. The mistletoe is a true parasite, as it sends its wood and roots directly into, and anastomoses with, the wood of the foster parent. At one time we aided in the cultivation of this plant in Worcestershire with our esteemed friend Mr. Edwin Lees.

Our usual plan of proceeding was to make a small slit in the under side of the branch of a tree destined to be the foster-parent. Some of these would grow, whilst some did not, perhaps, because the seed was demolished by the mistle-thrush.

The different sorts of trees operated upon were numerous, but it was found that the softer-wooded trees were among the most successful, such as the lime and poplar, while the oak was so difficult to inoculate.

Within the last few years Mr. Smith, the eminent nurseryman at Worcester, has succeeded in getting mistletoe to grow on young apple-trees, and he has for some time advertised apple-trees for sale with the parasite growing on it. We had the pleasure to send a tree thus prepared to Sussex in 1881, and on a visit to the tree the following year we had the satisfaction of gathering a nice spray of mistletoe to hang in the hall to celebrate the rites of Christmas.

So luxuriantly, indeed, did the parasite grow, that we felt

* Pages 129 and 130.

obliged to prune it pretty closely, as it seemed too much for the foster-parent.

As regards the trees upon which the mistletoe grows, there are few forest trees but it may be found upon, but some are much more liable to it than others. Thus, it is anything but common on the oak, and yet the question has more than once been put to us, "Is the mistletoe as common on other trees as upon the oak?" Now, we have been a hunter for this parasite for years, and yet we can only point to two oak trees with mistletoe, one at Eastnor Park, Worcestershire, and another at Frampton-on-Severn, in Gloucestershire. Mr. Miles once sent us a branch of hickory with mistletoe on it, and at Lansdown, Cheltenham, is a sycamore-tree, which once had two fine bunches of the parasite growing upon it.

Once we saw it growing on a birch-tree in a wood at St. Briavel's, in Gloucestershire. It is very general on apple-trees, less common on the pear.

Sir Walter Scott says:

> "Forth to the woods did the merry men go
> To gather in the mistletoe."

Lines which have been quoted to show that the poet knew little or nothing upon the subject. The finding of this plant on a birch-tree, in the middle of a wood, is somewhat remarkable, not only for its foster-parent, but for its position, and yet in the cases in which we have seen it on the oak the one was in the midst of a group of fine oaks, the others, if not in a wild wood, yet in a thick plantation.

Formerly mistletoe was held in great repute as a cure for epilepsy, for which Dr. Thornton tells us:

"The viscum should be be separated from the oak about Christmas, then gradually dried. It is afterwards to be ground into a fine powder, which ought to be confined in a bottle, and kept in a situation where both light and air are excluded, as the admission of either tends to deprive this vegetable of its natural efficacy.

"Medical Virtue.

"Instances of the efficacy of the *Viscus quercinus* in epilepsy are published in the writings of Paracelsus, Lemnius, Loseke, Hannes, Koelderer, Cole, Pliny, Sweiten, Pfündel, Borellus, Boyle, Colbach, Baier, Cartheuser, and Hartmann.

"We are informed that the late Dr. Fothergill and Dr. Gilbert Thompson employed this medicine with great success in the cure of epilepsy, and my learned friend Dr. Willan has experienced the utility of this plant in the treatment of that disease.

"The learned Dr. Frazer has had equal success with this plant, and published his experience in an ingenious work, entitled 'On Epilepsy, and the use of the *Viscus quercinus* (Mistletoe of the Oak) in the cure of that Disease.'" *

However, notwithstanding the grand array of names of those who have employed mistletoe as a medicine, its repute has entirely died out in our time, and it is doubtful if the plant would be found as a drug, even among the old-fashioned herbalists' list of simples.

We remember that in a very severe winter the orchards were much denuded of their mistletoe in order to feed sheep, which, as these animals eat it greedily, may account in some measure for its desuetude as a medicine.

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## THOUGHTS ON ENZOOTIC DISEASES.

By Thomas Greaves, F.R.C.V.S.

Whenever I feel impelled by a strong desire, even an overwhelming desire, to take up my pen and write on any special subject, it is at those times when my attention has been particularly occupied in the study of the subject, by having had to contend with and investigate it in all its gravity, and seriousness, and by contemplating it from every point of view, not only as to the source from whence it emanates, but also the best means of combating it, and restoring the poor afflicted animal to health. My desire is to record such thoughts as have occurred to me whilst so engaged in the midst of my patients, and entirely without referring to those most excellent works of Fleming on sanitary science. These works I assume are in the possession of and have been studied by every veterinary surgeon in the three kingdoms. What I am now doing is a sort of "extra utterance" on the subject. I have two objects: the *first* is to assist, as far as in me lies, my professional brethren when so engaged, and the *second* is the luxury of doing good, or thinking that I am doing good.

When a veterinary surgeon is summoned to attend an outbreak of disease—call it by that euphonious name "pink-eye" if you like—and finds the number of cases to become numerous in a few days, and some of them to assume a serious and complicated form, it is his bounden duty to endeavour to find out the cause, and get it removed as soon as possible. I grant you that it is very important to adopt prompt and proper medical attendance to the poor animal that has been attacked; but, im-

* 'A New Family Herbal,' by R. J. Thornton, M.D., pp. 832-3.

portant as this duty is, it is not a tithe of the importance of finding out the cause and removing it. My first question is, *Have you exhausted the resources of sanitary investigation?* If you have not, and have limited your attention to the medical care of the cases, then I would say you have failed in the performance of your duty as an efficient veterinary surgeon.

1st. *Have you got damp, foul stables?* By all means get fires in them at once—fires made of coke, in movable grates—light them outside the stable and let the smoke and sulphurous fumes pass away; then place them in the stalls for about twenty minutes. Do this two or three times a week; it will tend to change the character and quality of the air in the stables. Sprinkle quicklime also in every stall. I prefer this to any special disinfectant. You can also fumigate each stall by taking a shovelful of hot ashes, not red hot, and pour upon them a tablespoonful of carbolic acid. A dense white smoke arises; this kills all germs and poison in the air. If the acid be poured upon the ashes when too hot an explosion takes place, a black fume ascends; this is burnt acid; it is deprived of its nature, and is of no use whatever. It will be readily understood that, although you may be able by these means to destroy every disease-germ and every particle of poisonous exhalation to-day, and in so far mitigate the virulence of the evil, still the atmosphere in the stable will soon become charged again from the same source so long as it is allowed to exist.

2nd. *See to the ventilation.* I remember being once taken into a large stable in Manchester, in which the proprietors had had fifteen to twenty of their best horses taken ill and died during a period of about three months. Two died that very morning. The ventilation was pointed out to me as perfect; the stables were lofty, and high up there was an abundance of ventilators; but I remarked, "The horses do not breathe up yonder; they are breathing here within two feet of the floor, and here the stable is like the inside of a well. You ought to have an opening here, and here, and here, a foot square, on the ground surface, for ingress of fresh air, and the highest point for egress of heated foul air." These alterations were made that very day, and fires burnt, and, strange to say, not another horse died or was attacked with the disease.

The above cases occurred fifteen or twenty years ago, and were true cases of what some people would now call "pink-eye." Some of the animals had their eyes closed and bowel complications existed. I had at that time many cases of the same kind in other large firms, but very few of the animals died.

3rd. *Stable drainage.*—This is a matter of immense importance especially in large stables. When the drains have been laid for

twenty, thirty, or forty years, there can be no doubt whatever there must be various accumulations festering and rotting, and giving off intensely disagreeable and poisonous exhalations. We may call these disease germs. They are constantly ascending day and night, and in a close, badly ventilated stable the air becomes foul and unbearable; but the poor horses are forced to live in it, and sleep in it for weeks or months, until their constitution has imbibed so much of it, and the blood has become so much deteriorated, that if a season of intense cold should intervene, and these horses get starved and chilled, they readily take cold and become affected with influenza and die like rotten sheep. This also is called "pink-eye." The lungs soon break up, and death is certain to follow.

At one large establishment which I attend the drains had been down many years and the horses have never been free from chest influenza. For twenty years I had been urging that the drains be taken up and surface drains adopted. The company at length had four of the stables done six months ago; that is, the whole, of the pavement and the drains taken up, and every portion of dirt and rotting accumulation thoroughly removed, and then filled up with good gravel. The men, while doing the work, had to have handkerchiefs over their mouths and nostrils, and go to the door every few minutes for fresh air, so strong was the stench. The whole extent of the stables had a fourteen-inch thickness of concrete, and the pavement laid with proper fall, and asphalt run in between every slit, making the floor everywhere impervious to water. Since then we have had from eighty to one hundred cases of chest influenza in the adjoining stables, but not a single case from these four stables. I have known of other large establishments which were complete hotbeds of influenza for a long time, but in which after the drains had been taken up and surface drainage adopted influenza became quite unknown.

4th. *Treatment of these disorders.*—It has fallen to my lot to visit several large towns to see some hundreds of cases which had been designated "pink-eye." I found in some places that one third of the entire stock had been carried off; in other places that the whole had been carried off in a few days. When I have been told by veterinary surgeons that all the animals die when they become attacked, I have examined them with great care, especially with respect to the nature and history of the attacks, and the conclusion I have arrived at is that the disease was nothing more or less than influenza pure and simple; that it had nothing of a special character about it. I entirely confirm the opinion expressed on this point by Professor Simonds.

We have these cases to contend with in Manchester continu-

ously more or less; in one establishment or another we are never free. I venture to assert that our losses, on the average, are not more than two per cent. I find it is the custom in some towns to have the patients' legs bandaged up to the knees and hocks with hay or straw bandages, notwithstanding the feet are burning hot and the legs are very tender from œdema. Remove the bandages and you will find indentations you could lay your fingers in, made by the bandages; this no doubt is very objectionable, for it has been the cause of great pain, and suffering, and has greatly aggravated the case. Often there is not sufficient care taken in keeping the entire surface of the body of a proper heat.

The ears are in almost every case as cold as marble. It would appear that little or no importance is attached to this particular. I, on the other hand, attach very great importance to it. *No patient is going on favorably if his ears continue deadly cold.* We know that the ears may be frequently pulled, and as often get cold again. You may put a good thick hood on, even a second and a third, and still the ears be cold. Now, I never use hoods and never have cold ears. I have a horse cloth or a good thick sack stitched round the patient's neck, and supply the attendant at every place with our ear liniment. He drops eight or ten drops into the palm of his hand, rubs his hands together, and then rubs the ends of the ears well between his hands. The ears will afterwards keep hot for three or four days.

Now let us consider for a moment what this simple treatment effects. It causes a greater determination of blood to the head, enabling the brain, that vital organ, to perform its functions with more vigour. Again, in giving a draught, I find it is a common custom with some practitioners to give it with a twitch on the horse's nose, to hold his head up by it. This custom I consider cannot be too strongly reprobated. In the first place it puts the horse to intense pain; it maddens him, and causes him to be stupid, stubborn, and almost unconscious, and he will hold the medicine in his mouth, gurgling it a long time; and if he happens to have a sore throat there is nothing more likely than that he will get some of the mixture, if only a teaspoonful, into his trachea. This done a time or two a day will cause fatal consequences in two or three days certain. I avoid giving balls or draughts in all cases of sore throat. Give medicine in the water the animal drinks. Stimulate or poultice his throat and steam his head, but not in a bag, and put hot clothes round his chest.

If the breathing be much accelerated I often take a shovelful of hot ashes into the loose box, and sprinkle upon it a tablespoonful of nitrate of potass.

The fumes from this has a clear avenue into the lungs. It

goes direct into actual contact with the diseased lung tissues. I know no better sedative (if, in fact, we have any) that has the effect of causing a subsidence of tumefaction or hepatisation in the lungs.

The practitioner should never miss a *post-mortem* examination; it will teach him more than everything besides. It will show him the stages which the disease has passed through, as well as the immediate cause of death. If the disease has progressed into the third stage, and it will sometimes do so insidiously, the pulse, in spite of the most careful treatment, and breathing are often not much accelerated. Some horses stick to their eating, but if a rusty broncho-pneumonic discharge exists then grey hepatisation has taken place, and disintegration of lung tissue. Could our patient expectorate freely, as man does, the majority of these cases would recover. If vomica exists no kind of treatment will avail; or if the disease has assumed the other alternative, "hydrothorax," our patient must die. In the ordinary course of things he will arrive at this point in about three weeks, sooner if the disease has been driven on at express speed by violent counter-irritation.

5th. *Employment of medicaments.*—I find some practitioners administer ingredients which I am convinced have a most pernicious effect upon the horse; for instance, they give spirit of nitric ether, tinctura opii, tinct. pimento, &c., which are made with the methylic spirit. I have a strong conviction that this is a grave error, it contains wood naphtha which I look upon as a slow poison to the horse. Once I was induced to use it for a time. I had twelve cases in one stable, and numbers of others in other stables that had half-ounce dose of nitric ether, and half-ounce dose of tinct. pimento given twice a day. My patients made no progress, they had the best possible nursing and attention, pulses ranging from 64 to 96. Day after day they were stationary or retrograding, loathing all food, and looking like poisoned rats. It flashed across my mind that some ingredient which I was giving was at the bottom of this. I at once discontinued its use, and used none but spirit of nitric ether and tinct. pimento made from pure rectified spirit, and after the second dose they were all better. They rapidly improved, and all recovered; it seemed to regulate weak or disturbed nervous power, clear the head, and assist the appetite.

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## "PINK-EYE."

By Thos. W. Cave, M.R.C.V.S., Nottingham.

Having had during the last few months ample opportunity of studying the symptoms and course of the disease commonly

known as "pink-eye," which has been so exceedingly prevalent in various parts of the country, it will not, perhaps, be out of place to record the results of my observations, for the benefit of those who have not as yet become practically acquainted with it.

The first outbreak of this epizootic which came under my notice in Nottingham commenced in January, 1882, and, as far as my experience went, was rather extensive, the disease raging in various parts of the town for three or four months.

The second outbreak commenced in the first week of January last, and the disease has continued up to the present time, although its spread was markedly checked by the cold frosty weather of the middle and end of March.

The disease is evidently a specific fever of a highly contagious and infectious nature. It has a distinct period of incubation of probably two or three days' duration. I have fixed this time from the fact that when the first symptom, *i. e.* the loss of appetite, is noticed the temperature usually ranges from 103° to 105° F., and I have found that the loss of appetite occurs on the fifth day from the time of infection, so that the first elevation of temperature would probably occur about the third day after infection.

Accompanying the loss of appetite other symptoms are noticeable: disinclination to move when brought from the stable; cracking of the joints of the extremities; frequent changes of posture, first one leg being rested and then another. The pulse at this period ranges from 40 to 60; respirations normal; temperature 103° to 105·8° F. It will probably be found that the horse has not laid down during the previous night. For the next five days, from the first loss of appetite, no other symptoms beyond those I have mentioned above are noticeable, except in some cases swelling of the legs, but during this period the pulse is increased in frequency, ranging from 60 to 80; the temperature rises in some instances to 106°. Respirations still remain normal or but slightly increased; the inappetence is continued. The œdematous condition of the extremities may or may not occur, but is usually more prevalent in cart-horses.

On the fifth day, still dating from the loss of appetite, the eyes are first noticed to be affected, at first appearing weak and unable to bear any sudden access of light, and overflowing with tears; the conjunctiva now becomes inflamed and assumes a deep red colour, and has a sodden and swollen appearance, the eyelids become tumefied, and the palpebral fissure is partially or wholly closed. One or both eyes may be affected; if both, one more severely than the other.

As soon as the eyes show these characteristic symptoms a marked change takes place in the general condition of the patient;

the temperature rapidly falling, often to the extent of three or four degrees in the twelve hours; the pulse becomes less frequent, the appetite returns, and the animal lies down for the first time since the commencement of the disease.

In ordinary cases the patient now soon becomes convalescent, the eyes rapidly resuming their natural appearance, and the temperature and pulse becoming normal in two or three days.

From these facts it would seem that the crisis of the fever is reached at the tenth day from infection and the fifth from loss of appetite, and that the poison is eliminated from the system through the mucous membranes generally; for in some cases this process of elimination appears to cause severe diarrhœa, which, accompanied by flatulency and abdominal pain, commences when the eyes become affected, the mucous membrane of the bowels probably being congested, and in a similar condition to that of the conjunctivæ. In all cases at this stage there is a decided tendency to laxity of the bowels, and great care must therefore be taken in dieting.

These observations were made more particularly on those cases which were in our infirmary, and therefore continually under my own care; and I found it easy to foretell correctly the exact date when the eyes would first become affected.

I take these as typical cases, in which the disease runs its natural course without being aggravated by further complications.

In more severe cases the eyelids remain swollen for several days, the deep red colour of the conjunctiva only gradually subsiding, and the appetite slowly returning. In some cases lung complications were present, but only in those in which the debility was excessive, and to which, in my opinion, they were due, the lungs being only passively congested, and not the seat of active inflammatory action. In a few instances partial loss of power in hind extremities was noticed. Then, again, an intermittent pulse was frequently present during convalescence.

When the animal is aged and in a poor worn-out condition, prior to becoming affected, the diarrhœa and the lung complications are likely to prove fatal; but in general, when the animal is in a fair condition, the disease is unlikely to do so, except through neglect and want of proper treatment, or through continuance at work too long after the first symptoms have appeared.

It is interesting to note that, although a large number of cases came under my notice during the early part of 1882, not one of these, as far as I know, were affected again during the recent outbreak; and also that the disease appeared to be decidedly more severe this year than last.

It is also certain that isolation is effectual in stopping the

spread of the disease if carried out immediately the first symptoms are seen, several instances having occurred in my own experience in which, by early removal of the affected animals, the rest of the stud escaped.

Of the *post-mortem* appearances I am happily unable to speak, except in one case, where the animal was aged and worn out. Obstinate diarrhœa and abdominal pain set in, which rapidly proved fatal to the patient, already greatly debilitated. On *post-mortem* examination I found the mucous membrane of the large bowels congested throughout, and also congestion of the lungs.

The treatment I have adopted has been frequent exhibition of diffusible stimulants in small doses, salines in drinking-water; and in those cases in which the debility was excessive, small repeated doses of alcohol. After the febrile stage is over I have found the use of vegetable and mineral tonics specially valuable, more particularly Quiniæ Sulph. et Liq. Ferri Dialysat. In cases complicated with diarrhœa and abdominal pain, in which alteration of diet was not sufficient, I have given small doses of Pulv. Opii with port wine and arrowroot.

In conclusion, I may say I have not found that the disease presents any great difficulties where the cases are seen in the early stages, and provided the animal is in fair condition, and also that isolation at the commencement is specially successful in stopping the spread of the disease.

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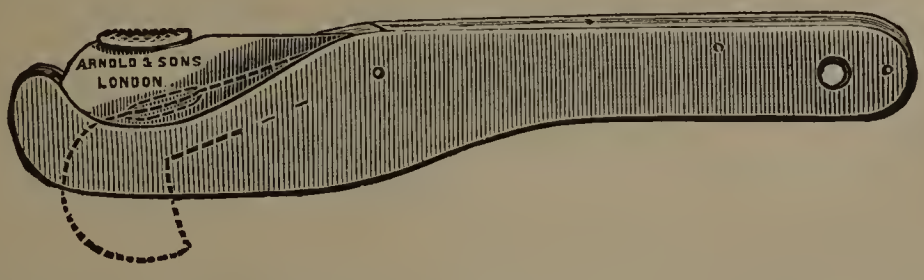
## NEW EMBRYOTOMY KNIFE.

By R. R. Cole, M.R.C.V.S., Hinckley.

Messrs. Arnold & Sons, of London, have made at my suggestion a new form of embryotomy knife of which the enclosed is a woodcut. Its advantages are:




1st. It can be effectually used with the hand and arm in a straight position, whereas with the ordinary slide knife the wrist must be somewhat bent in order to bring the cutting edge to bear; this in a constricted passage is always difficult and some-

times well nigh impossible. It is particularly useful in making the longitudinal incision in skin previous to the removal of a fore limb.

2nd. Its *perfect safety,* as should the animal struggle or suddenly drop, the instant the operator leaves off using it the cutting edge disappears.

## Pathological Contributions.

### CATTLE PLAGUE.

In Russia the cattle plague is still prevalent in the Provinces of Bessarabia, Warsaw, Volhynia, Ekaterinoslav, Podolia, Taurida and Kherson.

It is also said still to exist in the district of Gottschee, in the Province of Carniola on the Croatian frontier.

### PLEURO-PNEUMONIA.

No fresh cases of this disease have been reported from the State of Maryland, but it is said still to exist, especially amongst dairy cattle in the neighbourhood of Baltimore, but is reported to be on the decrease.

During the thirteen weeks ended March 31st, 1883, there were 83 outbreaks of this disease reported in Great Britain, and 232 animals attacked. This shows a considerable decrease from the numbers reported during the corresponding period of 1882, when the outbreaks reported were 136, and the number of animals attacked was 322.

### FOOT-AND-MOUTH DISEASE.

In Great Britain, during the thirteen weeks ended March 31st, 1883, there were 2282 outbreaks of this disease reported, and 68,368 were attacked. In the corresponding period of 1882, the outbreaks of this disease reported were 339, and the number of animals attacked 8138.

### SWINE-FEVER.

The outbreaks of this disease reported in Great Britain during the thirteen weeks ended March 31st, were 477, and 2363 swine were attacked. In the corresponding period of 1882, the outbreaks were 365, and the number of animals attacked 1646.

## Facts and Observations.

Consumption of Lamb—Royal Example.—The daily papers report that, in consequence of the mortality amongst sheep and lambs and the low point to which the sheep stock in the country generally has been reduced, the Queen has commanded that no lamb shall be served in the royal household during the present season.

International Congress for the Protection of Animals.—Our contemporary *Nature* states that an International Congress for the protection of animals is to be held at Vienna in September this year. A large number of local societies, as those of Berlin, Cologne, Munich, Dresden, and Hanover, besides several Spanish, Italian, and Russian societies, have given notice that they intend sending representatives to the Congress. Anti-vivisectionist societies will not be invited to attend, as the promoters of the Congress, eminent men of science, do not consider them as societies for the protection of animals, and hold that they are generally incompetent regarding the questions relating to such protection.

Exported Horses.—According to a statement by Mr. Walter Gilbey that the number of English horses sent to foreign countries in 1880 was 5128, value £311,302; in 1881, the number was 6108, value £380,346; and in 1882 the number was 6377, value £407,089.

Stimulating Property of Oats.—Experiments have been recently made by M. Sanson with a view to settling the question whether oats have or have not the excitant property that has been attributed to them. The nervous and muscular excitability of horses was carefully observed with the aid of graduated electrical apparatus before and after they had eaten a given quantity of oats, or received a little of a certain principle, which M. Sanson succeeded in isolating from oats. The chief results of the inquiry are as follows :—The pericarp of the fruit of oats contains a substance soluble in alcohol, and capable of exciting the motor cells of the nervous system. This substance is not (as some have thought) vanilline or the odorous principle of vanilla, nor at all like it. It is a nitrogenised matter, which seems to belong to the group of alkaloids, is uncrystallisable, finely granular, and brown in mass. The author calls it "avenine." All varieties

of cultivated oats seem to elaborate it, but they do so in very different degrees. The elaborated substance is the same in all varieties.—*Daily Paper.*

New Sewage Process.—A company has been formed at Liege for working the patent of M. Newjeun. This inventor proposes to purify sewage by filtering it through the basic slags of the Bessemor process, which contain calcium phosphate. These slags are said to withdraw from the sewage the organic and especially the nitrogenous matter, as well as a part of the mineral impurities whether dissolved or suspended. The slags are then converted into superphosphate by treatment with sulphuric acid. Analytical confirmation is wanting.—*Chemical News.*

Reactions of the Bile Pigments, E. capranica.—If 2 parts of bromide dissolved in 100 parts of alcohol are added by drops to a solution of bilirubin in chloroform or ether, the liquid becomes first emerald green, then blue, violet, red, yellow, and finally colourless. The action of chloric and iodic acid is similar. The solutions of the yellow cells of the chloroidea and retina, of the yolk pigments and the corpora lutea, are decolorised at once without a trace of green coloration.—*Chemical News.*

Transfusion and Ether Injections.—In a paper read at the Académie de Médecine (*Gaz. des Hôp.*, Dec. 21), Prof. Hayem related the results of his experiments in controversion of the accuracy of Prof. Verneuil's statement that transfusion is a useless operation, which may be superseded by hypodermic injections of ether. Having bled a dog almost to the point of death, he found that the injection of ether was attended with no durable effect, while transfusion produced a "true resurrection." When a large quantity of blood was withdrawn, the dilution of what remained by the transfer of the serum derived from another dog was also attended with the same success. The stimulation by ether only produces an increase in the energy of the cardiac contractions and a notable increase in the number of the pulsations, but does not give rise to any increase of the pressure of the blood nor of the rectal temperature.—*Med. Times and Gazette.*

Removing the Smell of Turpentine.—Sulphuric ether is said to have the property of modifying the very persistent and unpleasant odour of oil of turpentine mixtures. —*New York Med. Record.*

# THE VETERINARIAN, MAY, 1, 1883.

Ne quid falsi dicere audeat, ne quid veri non audeat.—CICERO.

## FOOT-AND-MOUTH DISEASE—INFECTED CIRCLES ORDER.

THE Order which we publish on the next page is in some respects more stringent in its provisions than any legislative measure which has yet been applied for the suppression of the foot-and-mouth disease. The scope and mode of action of the Order may be indicated by reference to the following extract from a circular letter which has been sent to all local authorities in Great Britain, with a copy of the Order.

"I am to point out that the Order is intended to operate in connection with Section 22 of the Contagious Diseases (Animals) Act, 1878, and with the Infected Districts, Markets, and Fairs Order of 1883.

"For example, when an Inspector serves a notice of his declaration of the existence or past existence of Foot-and-Mouth disease on the occupiers of premises, such premises forthwith become an Infected Place, subject to the determination of the Local Authority, under Section 22 of the Act, and at the same time there will be created an Infected Circle of a mile in diameter round the Infected Place. The Local Authority may, in any case, dissolve or contract the Infected Circle if they think fit. Movement of Animals in or into or out of an Infected Circle is, under the provisions of the Order, entirely prohibited, except in accordance with Regulations of the Local Authority.

"Local Authorities may make regulations for the movement of animals in or into or out of an Infected Circle; and if they deem it expedient, may prepare forms of licenses for the purpose of such movement in anticipation of the creation of Infected Circles; and in regard to the regulations it is considered that the Local Authorities will, with their knowledge of the particular circumstances of each district, be able

to act effectively without any instructions from the Privy Council. I may, however, call your attention to the fact that until regulations are made the movement of Animals within an Infected Circle is entirely prohibited.

"Sales of Animals in an Infected Circle will be regulated by the Infected Districts, Markets, and Fairs Order of 1883, which applies to all districts of Local Authorities in which there is a Foot-and-Mouth Disease Infected Place."

It is evident from the above quotation that the provisions of the Order will be applied in every case of the outbreak of disease without any action on the part of the Local Authority. In fact, the authorities can only act in the direction of diminishing the stringency of the provisions, which will operate most effectually in districts where the Local Authorities do not interfere to check its effects. We can understand that in some places, large towns for example, the Local Authorities may be compelled to allow movement in, into, and out of Infected Circles, under regulations; but in ordinary circumstances in rural districts the stoppage of movement of animals in a radius of half a mile from an infected place cannot be otherwise than beneficial.

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## FOOT-AND-MOUTH DISEASE (INFECTED CIRCLES) ORDER OF 1883.

AT the *Council Chamber, Whitehall,* the 23rd day of April, 1883.

By Her Majesty's Most Honourable Privy Council.

PRESENT: Lord President and Mr. Mundella.

The Lords and others of Her Majesty's Most Honourable Privy Council, by virtue and in exercise of the powers in them vested under The Contagious Diseases (Animals) Act, 1878, and of every other power enabling them in this behalf, do order, and it is hereby ordered, as follows:

*Short Title.*

1. This Order may be cited as THE FOOT-AND-MOUTH DISEASE (INFECTED CIRCLES) ORDER OF 1883.

*Commencement.*

2. This Order shall, except as otherwise expressed, commence and take effect from and immediately after the eighth day of May, One thousand eight hundred and eighty-three.

*Extent.*

3. This Order does not extend to—

(i.) Foreign animals' wharves; or

(ii.) Any dock, quay, wharf, or other place approved by the Privy Council for the landing and lairage of foreign animals; or

(iii.) Areas for the time being declared by the Privy Council to be Areas infected with foot-and-mouth disease; or

(iv.) The Metropolis.

*Interpretation.*

4. In this Order—

Animals means cattle (that is, bulls, cows, oxen, heifers, and calves), and sheep, and swine.

Foot-and-Mouth Disease Infected Area means an Area for the time being declared by the Privy Council to be an Area infected with foot-and-mouth disease.

Foot-and-mouth Disease Infected Place means a Place for the time being a Place infected with foot-and-mouth disease under the Act of 1878.

Swine-Fever Infected Area means an Area for the time being declared by the Privy Council to be an Area infected with swine-fever.

Other terms have the same meaning as in The Animals Order.

*Infected Circles.*

5.—(1.) Where under the provisions of section twenty-two of the Act of 1878 any cow-shed, field, or other place has, upon service of notice of declaration by an Inspector of the Local Authority, become a Foot-and-Mouth Disease Infected Place, the whole space lying within a distance of half a mile from any part of such Infected Place shall forthwith become and be for the purposes of this Order an Infected Circle.

(2.) The Inspector shall forthwith serve or cause to be served a notice of his declaration, signed by him, unless in the circumstances this appears to him not to be expedient, on the occupiers of all lands and buildings any part whereof in his judgment is situate within half a mile from such Foot-and-Mouth Disease Infected Place.

(3.) The Inspector shall, with all practicable speed, inform the Local Authority of every district within which any part of the Infected Circle is situate of his declaration and notice, and shall

send his declaration and a copy of his notice to each of such Local Authorities.

(4.) A Local Authority may at any time, and from time to time, by order reduce the limits of an Infected Circle within their district, or of so much as is within their district, and, where an Infected Circle has been reduced as aforesaid, they may reduce, extend, or otherwise alter the limits thereof or of so much as is within their district, provided that no lands or buildings shall be included within an Infected Circle that are not situate within half a mile of a Foot-and-Mouth Disease Infected Place, and any Infected Circle so reduced, extended, or altered shall thenceforth be the Infected Circle for the purposes of this Article.

(5.) A Local Authority may at any time by order dissolve an Infected Circle within their district, or such part as is within their district, and thereupon such Infected Circle or such part, as the case may be, shall cease to exist.

(6.) Where under the Act of 1878 the cowshed, field, or other place in respect of which an Infected Circle has been constituted under the provisions of this Article ceases to be a Foot-and-Mouth Disease Infected Place, such Infected Circle shall cease to exist.

(7.) Where the Privy Council at any time by Order declare a Foot-and-Mouth Disease Infected Area and any part of such Area is at the date of the Order situate within an Infected Circle, such part shall thereupon cease to be part of an Infected Circle.

(8.) The Local Authority of every district in which an Infected Circle or part of an Infected Circle under this Article is situate shall give such notice of the existence of the Infected Circle or of that part by placards or otherwise in and about the Infected Circle, or in such other manner as the Local Authority consider best fitted to ensure publicity for the same, and shall give notice of the existence of such Infected Circle or such part to every Railway Company having a Railway or Railway-station in the same.

(9.) The Privy Council may by Order dissolve an Infected Circle or any part thereof, and the same shall thereupon cease to exist.

*Power to Local Authority to make Regulations.*

6.—(1.) A Local Authority may from time to time make general or special regulations for prohibiting or regulating the movement of animals in or into or out of Infected Circles.

(2.) This Article shall come into force and take effect from and immediately after the twenty-fourth day of April, One thousand eight hundred and eighty-three.

*Movement in or into or out of Infected Circle.*

7.—(1.) No animal shall be moved in or into or out of an Infected Circle except in accordance with regulations made by the Local Authority under this Order for the time being in force.

(2.) Where two or more Infected Circles adjoin, overlap, or extend beyond the limits of each other, the whole of such Infected Circles shall, for the purposes of movement of animals under this Order, be deemed to be one Infected Circle.

*General Limitations on Provisions respecting Movement.*

8. Nothing in this Order or in any regulation made by a Local Authority respecting movement of animals under this Order shall be deemed to—

(i.) Prohibit or apply to the movement of animals unless the movement is intended to be, wholly or partly, along or across a highway or thoroughfare, or by railway, canal, river, or inland navigation; or

(ii.) Restrict movement through an Infected Circle by railway, without untrucking; or

(iii.) Apply to movement of animals affected with foot-and-mouth disease (which movement is regulated by the Act of 1878 and The Animals Order); or

(iv.) Apply to movement of swine in, or into, or out of, a Swine-Fever Infected Area (which movement is regulated by The Swine-Fever Order of 1882).

*Production of Licences; Names and Addresses.*

9.—(1.) Every person in charge of animals being moved, where, under any regulation made by a Local Authority under this Order, a movement license may be necessary, shall, on demand of a justice, or of a constable, or of an Inspector, or other officer of a Local Authority, produce and show to him the movement license, if any, authorising the movement, and shall allow it to be read, and a copy of or extract from it to be taken by the person to whom it is produced.

(2.) Every person so in charge shall, on demand as aforesaid, give his name and address to the justice, or constable, or Inspector, or other officer.

*Offences.*

10.—(1.) If an animal is moved in contravention of this Order, or of a regulation of a Local Authority made under this Order, or of any license under any such regulation, the owner of the animal, and the person for the time being in charge thereof, and the person causing, directing, or permitting the movement, and the person or company moving or conveying the animal, and the consignee or other person receiving or keeping

it, knowing it to have been moved in contravention as aforesaid, shall, each according to and in respect of his or their own acts and defaults, be deemed guilty of an offence against the Acts of 1878.

(2.) If a person in charge of animals being moved, where under a regulation made by a Local Authority under this Order a movement license is necessary, on demand made under this Order, fails to give his true name and address, or gives a false name and address, he shall be deemed guilty of an offence against the Act of 1878. C. L. PEEL.

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## Translations from the Foreign Journals.

### INVESTIGATION RESPECTING THE NATURE OF RABIES.

By M. PASTEUR, with the assistance of Messrs. CHAMBERLAND, ROUX, and THUILLIER.

OF all diseases rabies seems to be that of which the study offers the greatest difficulties. Clinical observation is impotent, and it is necessary to have ceaseless recourse to experiment; but the signification of the experimental effort is beset still with insoluble doubts.

The saliva was the only secretion where the presence of the rabic virus had been proved; but the saliva inoculated by biting or by direct injection in the cellular tissue does not communicate madness to a certainty. Further, when the disease declares itself, it is only after an incubation always long, of which the length is varied and undetermined.

From these facts it results that if it is desired to arrive at a judgment on the experiments in inoculation of which the results are negative, one always fears either that the inoculated subjects have not been watched long enough, or that the experiment has not succeeded.

Add to these circumstances certain difficulties in procuring virus at will, and the repugnance to and the danger of handling mad dogs, and one understands easily that the study of rabies would be likely to baffle the inquirer.

The situation is not the same now. When I resolved nine years ago to study this disease deeply I did not deceive myself about the difficulties and extent of such a study, and I understood that the first problem to be solved was the method of inoculation of the complaint, which, by shortening the lengthy incubation, would cause it to appear with certainty. This

method we have found, and in my name and those of my colleagues I explained it in a note presented to this Academy May 30th, 1881.

The method is based upon the fact that the central nervous system is the principal seat of the rabic virus, which is formed there in great quantities, and can be collected there in a state of perfect purity; in the second place, that the rabic matter inoculated pure on the surface of the brain, with the aid of trepanning, causes madness rapidly and surely. Since then we have found the same advantages with regard to different forms of madness in another method, of a still easier application—the injection of virus through the veins. The two great obstacles to an experimental study of madness are removed for the future.

Although the new researches which I have the honour to communicate now to the Academy leave still much to desire, they nevertheless suggest many new ideas; and then, as Lavoisier says, "One would never give anything to the public if one wanted to attain the end of the inquiry, which seems to extend in proportion to the effort to complete it." I have thought that my explanation would gain in clearness and shortness if I limit myself to sum up the consequences which arise from the inquiry, reserving the details of the facts to be added afterwards to the present communication.

I. Dumb madness and furious madness, more generally all forms of madness, proceed from the same virus. We have discovered, indeed, that one can pass experimentally from furious madness to dumb madness, and *vice versâ*, from dumb madness to furious madness.

II. Nothing is more varied than the rabic symptoms. Each case of madness has, so to say, its own characteristics, and there is every reason to believe that their characters depend on the particular points of the nervous system, encephalon, and spinal marrow, where the virus is situated and developed.

III. In rabic saliva the virus is found combined with different microbes. The inoculation of this saliva may induce three kinds of death:

1. Death by the new microbe, which we have made known under the name of "microbe of saliva."

2. Death by pyæmia.

3. Death by madness.

IV. The medulla of a person dead from rabies, like that of any animal also dead from rabies, is always virulent.

V. Rabic virus is not only met with in the spinal bulb, but, besides, in all or part of the brain. It is found localised in the spinal marrow, and often in all parts of the cord.

Virulence in the spinal marrow, either superior or middle, or

lumbar, even quite near to its termination, is not less than that of the matter of the medulla or the parts of the brain.

So long as the brain or the spinal marrow does not putrefy virulence persists therein.

We have been able to preserve a rabic brain with all its virulence during three weeks in a temperature of nearly 12° C.

VI. To develop madness quickly and surely one must have recourse to inoculation on the surface of the brain in the arachnoid cavity with the help of trepanning.

One realises equally the twofold condition of the suppression of a long duration in incubation, and of the certain appearance of the disease by the inoculation of pure virus in the circulatory system.

In putting these methods into practice the co-operation of M. Roux has been most valuable. Skill enough has been acquired to render accidents a very rare exception. By the use of these methods, described as so favorable to the experimental study of the disease, rabies declares itself often at the end of six, eight, or ten days.

VII. Rabies communicated by injection of rabic matter into the circulation presents frequently very different characteristics to those of furious rabies caused by biting or by trepanning, and it is probable that many cases of dumb madness may have escaped observation. In the case of rabies which one could call *rabies médullaires* the cases of immediate paralysis are numerous, the fury being often absent, the rabic barkings rare; on the other hand, the pruritus is sometimes frightful.

The details of our experiments lead to the belief that in the inoculations by the circulatory system, so far as we have determined, the spinal marrow is the first affected part; that is to say, the virus locates itself there, and multiplies there from the first.

VIII. Inoculation (not followed by death) of saliva or rabic blood by intravenous injection in the dogs does prevent subsequently madness and death from a new inoculation of pure rabic matter made by trepanning, or by inoculation through the veins. (These results contradict those which have been announced by M. Galtier to this Academy August 1st, 1881, by experiments made on sheep.)

IX. We have met with cases of spontaneous cure of rabies after the first symptoms only were developed, never after the acute symptoms had appeared.

We have also met with cases of the disappearance of first symptoms with the revival of the disease after a long interval of time (two months). In these circumstances the acute symptoms have been followed by death, as in the usual cases.

X. In one of our experiments upon three dogs inoculated in 1881, of which two took rabies quickly and died, the third, after having shown the first symptoms, was cured. This last dog, reinoculated in 1882 by trepanning, did not become rabid.

Here, then, is a first step in the direction of prevention of rabies. We possess now four dogs which are proof against rabies, whatever the manner of inoculation, and the intensity of the virulence of the rabic matter. Other test dogs, inoculated at the same time, all went mad and died.

These four dogs include the preceding one, that of Prop. X. Like this latter, they are either preserved against rabies by a mild attack, which must have escaped observation, or they are naturally refractory to rabies, if so be that there are such dogs. This is a point which we will examine afterwards. In the next place I may add that man never gets rabies except after the bite of rabid animals. It is only necessary, therefore, to find a proper method to prevent the madness of the dog, to preserve humanity from the terrible scourge. This end is still far off, but in the presence of the facts which precede may not one hope be entertained that the efforts of science will one day attain to it? It is to the kindness of M. Bourrel, veterinary surgeon at Paris, well known by his publications on rabies, that we owe the two first dogs with furious rabies and mute rabies employed at the commencement of our experiments, December, 1880. Since then rabies has been maintained without discontinuing in my aboratory.

We have been able to use dogs dead of rabies from l'Ecole d'Alfort, thanks to the eagerness to serve us of Messrs. Gonbause (director) and Nocard, distinguished professor of this school.

At last, quite recently, M. Rossignol, veterinary surgeon at Melun, procured for us the head of a cow which died mad at a farm of his client's after the bite of a mad dog. It is interesting to know that all the animals are dead of rabies (the last one this morning) which were inoculated by trepanning last November (22nd) with the matter from the bulb of the brain of this cow, with the help of the middle lobe of the cerebellum, also with the right sphenoidal lobe, and finally by the matter of the left frontal lobe, from whence it results that all the parts of the brain of this beast had developed rabic virus in abundance. However, with the exception of extensive congestion of the left frontal lobe, less in the elongated marrow, all the parts of the brain appeared very healthy.

The propositions which precede are the fruits of observations, including the inoculation of more than 200 dogs, rabbits, and sheep.—*Réceuil de Médecine Vétérinaire*, January, 1883.

## THE FUTURE OF RABIES.

Prof. Bouley has published in his *Recueil de Méd. Vétérinaire* for January 15th an interesting article on the new vista which is opening up in the pathology and prospective treatment of rabies. Until quite recently, he observes, we have been content to regard it as a simple neurosis, the material agent giving rise to the functional disturbances characteristic of the disease being undiscoverable by the means at our disposal. All this is now changed, and new researches of Pasteur and others demonstrate that the functional disturbance, of which physiological induction places the seat in the central nervous system, is determined by a *material agent* which, although still invisible, is yet present in this system. This is shown by the effects which it produces when a portion of the cerebral or medullary matter is transferred from a mad animal to the surface of the brain of a healthy animal. In other words, the living element which gives rise to rabies, the virus of this disease, has its seat in the central nervous system, which is its medium for organic culture and multiplication. It is this multiplication which gives rise to the various symptomatic manifestations known as rabies. As no objective sign denounces this condition, the proof of its reality is found in inoculation. So, also, by culture of the virus in an extra-organic medium, the material agents of the disease may be multiplied to infinity.

The knowledge of these facts should lead to much greater precautions being taken in the practice of autopsies of subjects, whether in man or animal, dying of rabies. The belief that the localisation of the rabid virus was exclusively confined to the mouth has given rise to a very deceptive security, in face of the experimental demonstration of the concentration of the elements of virulence in the cerebro-spinal apparatus, seeing the greater difficulty in opening the cranium and spine, and the greater chance of inoculative wounds.

One of the great difficulties of the experimental investig a tion of rabies arose from the want of fixity in the virulent properties of the saliva—the sole reputed inoculable material. When the dog had been inoculated, the effects had to be waited for for months, and even when they were not produced, a rigorous conclusion would scarcely be formulated. All this is now changed; for experiment demonstrates, on the one hand, that we may transmit rabies with certainty by taking directly from the brain the inoculable matter in

perfect purity and powerful activity; and, on the other hand, that by inoculating the surface of the brain, laid bare by the trephine, directly with this virus, we reduce the delay of the period of incubation to rarely more than two weeks, and often less. When the virus is injected directly into the veins, as practised by M. Pasteur, its virulent diffusion into the central nervous system takes place with great rapidity, and the symptoms of rabies are produced as by inoculation of the brain, but with somewhat different modes of expression of the disease.

One of the most important results of these experiments has been the *cure* of an inoculated dog after a manifestation of the early symptoms, and the refractory condition this dog offered to every attempt to reinoculate it. Three other dogs were also refractory, but their anterior history is less exactly known; but the first dog mentioned had been carefully watched, and resisted cerebral inoculation and intravenous injection, which are such certain means of transmitting the disease. This fact, unique as it is, allows of our ranging rabies in the category of diseases against which immunity may be acquired by a former attack, remaining compatible with life. We would thus seem to be on the way to "vaccination" against rabies itself. Another hope may still be entertained—namely, that therapeutics will some day render itself mistress of rabies, and succeed in vanquishing it. We now know where to proceed in attacking it, for its seat is the central nervous system, and its cause is a living element multiplying in that system. The problem lies in the discovery of an agent which may oppose such multiplication. But when we witness in the laboratory the infinitely minute quantity of a substance which may prove efficacious in arresting the pullulation of a given ferment, we feel authorised to conceive the hope that experiment will lead to the special agent which, transmitted by the blood-vessels to the central nervous apparatus, will there be enabled to arrest the pullulation of the rabid virus, and extinguish its activity. Thanks to the double discovery of the inoculability of rabies by transferring its virus to the cerebral surface and by intravenous injections, investigations of this nature have become possible, and great is the interest that they should be undertaken.—*Med. Times and Gazette.*

## Extracts from British and Foreign Journals.

### SECOND REPORT OF EXPERIMENTS ON THE DEVELOPMENT OF THE LIVER-FLUKE (*FASCIOLA HEPATICA*).

By A. P. Thomas, M.A., F.L.S., Balliol College, Oxford.

(*Continued from p.* 189.)

It is clear, therefore, that those snails which have this habit of swallowing the eggs may be exposed to infection with trematode larvæ. The species in which I have more especially noticed the habit are sufficiently numerous (viz. *Limnæus stagnalis*, *L. pereger*, *L. auricularis*, *L. palustris*, *Planorbis marginatus*, *P. carinatus*, *Bithynia tentaculata*, as well as three slugs, *Arion ater*, *Limax agrestis*, and *L. cinereus*) to allow us to assume that it is very generally prevalent amongst our land and fresh-water molluscs.

Von Willemoes-Suhm published in 1873 a list of the trematode embryos then known.* Since then, that of *Distoma trigonocephalum* has been described by Von Linstow. Out of a total of thirty species, nineteen are covered externally with cilia, and eleven are without cilia. The ciliated covering present in many forms, including *Fasciola hepatica*, seems to indicate that the embryo is destined to be liberated in water, and to search for its molluscan bearer by swimming. But where the embryo is devoid of any ciliated covering, its chances of meeting with a host will be greatly increased by this habit on the part of various snails and slugs. Even with ciliated embryos infection may occur in both ways. In the case of land-molluscs—and the number of larval trematodes known to inhabit these has been largely increased by recently published observations of Professor Ercolani†—this

* 'Zeitschrift für wissenschaftliche Zoologie,' vol. xxiii, p. 341. As no list of these embryos exists in English, it may be useful to give it here. The nineteen ciliated embryos are: *Fasciola hepatica*, *Distoma hians*, *D. laureatum*, *D. viviparum*, *D. trigonocephalum*, *D. nodulosum*, *D. cygnoides*, *D. longicolle*, *D. globiporum*, *D. folium*, *D. lanceolatum*, *Bilharzia hæmatobia* (see Dr. Cobbold's work on 'Parasites'), *D. pinnatum*, *D. signatum*, *Monostoma mutabile*, *M. flavum*, *M. capitellatum*, *Amphistoma subclavatum*, an embryo obtained from a retort-shaped egg out of *Anas*. The embryo of *D. lanceolatum* has the cilia on the anterior half of the body only. The eleven unciliated embryos are: *Monostoma filum*, *M faba*, *Distoma megastomum*, *D. tereticolle*, *D. ovocaudatum*, *D. perlatum*, *D. mentulatum*, *D. variegatum*, *D. cylindraceum*, *Gasterostoma crucibulum*, *G. fimbriatum*.

† 'Dell' Adattamento delle specie all' ambiente. Memorie dell' Accademia delle Scienze dell' Instituto di Bologna.' Serie iv, tomo ii, 1881.

mode of infection from the swallowed eggs would seem to be far more probable than the entrance of a free embryo either through the skin or into the pulmonary chamber.

Professor Leuckart has quite recently published a paper,* in which he states that he has discovered one reason of the want of success which had hitherto attended infection-experiments. He has found that *Limnæus pereger* is at least one of the intermediate hosts of the liver-fluke, but that it is only the very youngest and smallest individuals that are liable to infection. The discovery was made in the following way. He had obtained, as he believed, some specimens of *Limnæus truncatulus*, and having exposed them to infection, succeeded in obtaining a further development of the embryos. But a closer examination of his snails showed that he was really dealing *not* with *Limnæus truncatulus* but, owing to a most fortunate mistake, with young specimens of *L. pereger*. According to his account, the ciliated embryo wanders into the young snail, and losing its layer of ciliated cells, changes into a sporocyst, within which rediæ (or germinal sacs provided with pharynx and intestine) develop. These rediæ are set free from the sporocyst, and within them are developed spherical masses of cells. But here, unfortunately, his observations end, for he has not been able to trace the further growth of these germinal spheres, though we may conjecture that they develop into the brood of cercariæ, that is, of those forms which eventually enter the sheep. Before the work can be regarded as completed, we must trace the cercariæ from the rediæ, and determine the form and manner in which they enter the sheep, whether whilst still in the snail, or encysted on grass, &c. For this purpose it will be necessary to feed sheep with the suspected larval form.

I have endeavoured to confirm these results of Professor Leuckart in the case of young *L. pereger*, and have met with partial success, although my experiments have been restricted by the scarcity of the needful material. Fluked livers have been very rare during the past spring, and I have had great difficulty in securing the comparatively small number of fluke-eggs with which I have worked. I exposed about eighty examples of *L. pereger*, varying in length from 1·4 mm. to 4 mm., to infection. I have measured young *L. pereger* which have just escaped from the egg, and find that they are as nearly as possible 1 mm. long, so that many of my snails must have been sufficiently small. Although they were exposed to infection from a larger number of eggs than my

* 'Archiv für Naturgeschichte,' 1882, p. 80.

examples of *L. truncatulus*, only a few of the smallest were found to contain embryos, and none of these proceeded far in their development. Some of the smallest of the specimens of *L. pereger* died very soon, possibly from injury done them by the parasite; but more than three fourths, including all the larger ones, entirely escaped infection. Those snails which have reached the size of 3 mm. seem to enjoy an immunity which may be due to the greater firmness of their tissues. It will be seen, however, that *L. pereger* does not form so suitable a host as *L. truncatulus*, for in the case of the latter species all the examples, both large and small, that I have experimented with have so far proved to have been infected. As *L. truncatulus* is said to be a very widely distributed species, and is amphibious in its habits, it will evidently be by far the more dangerous bearer.

Leuckart says of the head-papilla of the embryo of *Fasciola hepatica*, that it "seems to function as a tactile organ." But I have no doubt that it really has the function that I assigned to it in my former paper, viz. that it is a *boring-organ*.* The papilla is ordinarily short (its length is about ·006 mm.), the end is quite blunt, or may have a slight depression in the middle. But when the embryo begins to bore into any object, the papilla is protruded, and takes the shape of a cone with a sharp point and a bulbous base. I have repeatedly observed an embryo attempting to bore into the foot of a small snail placed upon the same slide with it under the microscope. The point of the head-papilla is directed towards the tissue of the snail, and the embryo turns round on its longitudinal axis, the cilia working actively and pressing the anterior end against the surface of the snail, aided in this by the contraction of the body of the embryo, which is slowly drawn up and then rapidly extended. As the papilla sinks further and further into the soft tissues, acting as a wedge in forcing the neighbouring cells apart, it becomes long and narrow, and the bulbous enlargement at its base disappears. The papilla has now four or five times its ordinary length, and I have observed it penetrate between the columnar epithelial cells of a snail's foot to the depth of ·022 mm. (see Fig. 2). I could never observe an embryo actually enter the snail in this way, the tissue of the foot being probably too unyielding, at least when pressed on by a cover-glass. The embryo withdrew its papilla, and searching for a softer place, at once recommenced its boring operations. I have, however, found embryos in the connective-tissue of the foot in other specimens of *Limnæus*, and these

* 'Royal Agricultural Society's Journal,' vol. xvii, p. 7.

had evidently forced their way in by boring in the manner described. The layer of cuticular cells is shed, but the embryos do not die at once, notwithstanding that such a situation is unfavorable to further development.

A differentiation in the tissue of the head-papilla is visible in the form of a delicate rod-like structure occupying the axis, not distinct enough to be called a spine, though it possesses considerable rigidity. It is particularly evident in preparations of embryos killed with osmic acid and stained with picro-carmine.

Leuckart states in the same paper that he received a number of specimens of *L. truncatulus*, gathered from the banks of the Main, and at once examined these for larval trematodes. He found three different kinds of rediæ. One of these contained tailless distome-larvæ, and notwithstanding that the rediæ differ in certain respects from those found in his infection experiments (they have no lateral processes), he thinks he is justified by the characters of the included larvæ in considering this form to belong to the liver-fluke, at any rate until further results are obtained. His reasons are: 1, the larvæ included in the rediæ are tailless forms, which may indicate that they are not destined to leave the snail in which the redia is found; 2, the surface of the larvæ is beset with spines; 3, the relative sizes of the oral and ventral suckers are much the same as in the liver-fluke. He was unable to test the matter by feeding a sheep with these tailless larvæ, as he found them in only one of the snails.

(*To be continued.*)

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## STERILITY.

Extract from the Gulstonian Lectures. Delivered by J. Matthews Duncan, M.D., F.R.C.P.L.

Very little is known of the sterility of animals, and it is easily understood that reliable observations can only with great difficulty be made on them, especially in a state of nature. Many authors, and latterly Darwin and his colaborators, have paid much attention to the great subject of the sterility of hybrid animals. Observations and experiments in this department are made chiefly on domestic animals, or wild animals in confinement, and each experiment has a high value. But the sterility of ordinary domestic animals has been little studied. In herds of fine heifers and cows, and in mares, it is occasionally exhibited, but I have no data as to its frequency; and in cattle at least, observations are im-

perfect, the animal that, by sterility of one season, disappoints its owner, being generally at once fattened for the butcher.

It is a well-known belief among breeders, which may be historically traced to ancient times, that when the female of any kind is made to breed when very young, she does so at the expense of permanently preventing her own growth to perfection, and she will likely produce offspring that is not of the best quality. This failure is well illustrated in the case of the common fowl and of the turkey, the progeny of chickens and of turkeys one year old being not the best of their kind, and specially difficult to rear. Fanciers breed these animals from a female two years and a male three years old. The occurrence of sterility in early and in elderly life is clearly seen, and its degree easily made out in pluriparous mammals, as the dog and pig, and in birds whose broods can be counted, and whose yearly production of eggs can be also numbered. This subject will be discussed fully when we come to consider pluriparity in woman.

Overfeeding, or the production of fatness or of obesity in the female, is well known to be hostile to fertility, to be an illustration of the opposition of individuation to genesis. By special feeding and fattening turkeys and common fowls the henwife arrests almost completely the production of eggs. They may also be made fewer by starving the birds, and not fewer only, but also smaller. These birds, when highly fed, sometimes exhibit excessive productiveness, two eggs being laid daily—an instance of great intensity of fertility; but this is not regarded with favour, having, I am told by a turkey fancier, an injurious influence, in their case, by delay of the commencement of laying in the season following that of the excessive production. The breeder of cattle prevents by careful management the fattening of the females.

In respect of feeding, comparisons are made between the relative sterility of wild animals and the comparative fertility of domesticated or confined animals of the same species, but the comparisons are not quite satisfactory from the intermixture of the influences of food and of domestication or confinement; and again, in the comparisons of animals fed on rich and on poor pasture, sufficient care is not taken to ensure that the compared animals are of the same breed. With this previous reflection I subjoin an interesting passage from Spencer's chapter on nutrition and genesis. "Clear proof," says he, "that abundant nutriment raises the rate of multiplication (and *vice versâ*) occurs among mammals. Compare the litters of the dog

with the litters of the wolf and the fox. Whereas those of the one range in number from six to fourteen, the others contain respectively five or six, or occasionally seven, and four, five, or rarely six. Again, the wild cat has four or five kittens, but the tame cat has five or six kittens two or three times a year. So, too, is it with the weasel tribe. The stoat has five young ones once a year. The ferret has two litters yearly, each containing from six to nine; and this notwithstanding that it is the larger of the two. Perhaps the most striking contrast is that between the wild and tame varieties of the pig. While the one produces, according to its age, from four to eight or ten young ones once a year, the other produces as many as seventeen in a litter; or, in other cases, will bring up five litters of ten each in two years—a rate of reproduction that is unparalleled in animals of as large a size. And let us not omit to note that this excessive fertility occurs where there is the greatest inactivity—where there is plenty to eat and nothing to do. There is no less distinct evidence that among domesticated mammals themselves the well-fed individuals are more prolific than the ill-fed individuals. On the high and comparatively infertile Cotswolds it is unusual for ewes to have twins, but they very commonly have twins in the adjacent rich valley of the Severn. Similarly, among the barren hills of the West of Scotland two lambs will be borne by about one ewe in twenty; whereas in England, something like one ewe in three will bear two lambs. Nay, in rich pastures, twins are more frequent than single births; and it occasionally happens that after a genial autumn and consequent good grazing, a flock of ewes will next spring yield double their number of lambs—the triplets balancing the uniparæ. So direct is the relation that I have heard a farmer assert his ability to foretell, from the high, medium, or low condition of a ewe in the autumn, whether she will next spring bear two, or one, or none."

(*To be continued.*)

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## BONE DISEASES.

THE PATHOLOGICAL SOCIETY OF LONDON,
*Tuesday, February 20th.*

J. W. HULKE, F.R.S., President, in the Chair.

MR. SUTTON showed the skeleton of a lizard, a rhea, and four monkeys. In the lizard all the long bones were more or less affected: there were swellings not only at the junc-

tion of the ribs and their costal cartilages, but along the shafts of the ribs; the bones of the skull were particularly soft; there were cartilaginous tumours all over the skeleton, two on the humerus each containing a long nucleus. In the rhea the skull was very soft, whereas normally it would be very hard; in the metatarsal bone at the junction of the epiphysis there was a cartilaginous nodule. The first monkey was said during life to have been paralysed; its chest was deformed; there was no beading of the ribs; the crests of the iliac bones were doubled over by the action of the abdominal muscles, and the scapulæ by the action of the serrati. The long bones were very soft at their extremities; the epiphyses were enlarged and showed a small zone of proliferating cartilage, but it was not so bluish as in ordinary rickets. In the trabecular spaces of the medullary cavities he had found fat. In one of the long bones the medullary cavity extended quite down to the epiphysis. In the second monkey the bones presented much the same characters as in the previous one: the skull showed very marked craniotabes, which had even gone on to perforation; the forearms showed swellings like those due to old fracture, but a careful examination showed that there had been no fracture. The third monkey was shown on account of the osteoporosis of the skull, which could not be recognised before the examination was made. The fourth monkey had, he considered, osteitis deformans: there was slight lateral curvature; the radius and ulna were markedly curved, but not at all after the manner of rickets. He had drawn up a table which he thought would show how the several changes of osteophytes, osteomalacia, and osteitis deformans might be brought about. In his view, osteitis, osteoporosis, and osteomalacia all owned a common cause, viz. inflammation.—*Med. Times and Gaz.*

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## DR. FORMAD'S RULES FOR EXAMINATION OF THE URINE.

Dr. Kempe, of Philadelphia, furnishes to the *Louisville Med. News* (Dec. 23rd) the following rules from a private lecture delivered by Dr. Formad "On the Pathology of Renal Diseases:"—"1. Sediment in the urine has no significance unless deposited within twenty-four hours. 2. Albumen in the urine does not indicate kidney disease unless accompanied by tube-casts. The most fatal form of Bright's disease—contracted kidney—has little or no albumen. 3. Every white crystal in urine, regardless of shape, is a phosphite, except the oxalate of lime, which has its own peculiar

form—urine alkaline. 4. Every yellow crystal is uric acid if the urine is acid, or a urate if the urine is alkaline. 5. Mucous casts, pus, and epithelium signify disease of the bladder (cystitis) or of other parts of the urinary tract, as determined by variety of epithelium. 6. The urine from females can often be differentiated from the urine of males by finding in it the tesselated epithelium of the vagina. 7. Hyaline casts (narrow), blood, and epithelial casts signify acute catarrhal nephritis. Much albumen. 8. Broad hyaline casts, and epithelial dark granules and oil casts signify chronic catarrhal nephritis. At first, much albumen; later, less. 9. Hyaline and pale granular casts, and little or no albumen, signify interstitial nephritis. 10. Broader casts are worse than narrow casts, as far as diagnosis is concerned, for the former signify a chronic disease. 11. The urine should be fresh for microscopical examination, as the micrococci will change hyaline casts into granular casts, or devour them entirely in a short time. 12. Uric acid in the urine may, in Trommer's test for sugar, form a protoxide of copper, this often deceiving the examiner into the belief that he has discovered sugar. Thus, when urine shows only a trace of sugar, other methods of examination must be used—preferentially the lead test. 13. The microscope gives us better ideas of the exact condition of affairs in the examination of the urine than the various chemical tests."—*Med. Times and Gazette.*

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## A NEW STYPTIC OF INDIGENOUS GROWTH.

By Professor Quinlan, M.D.

About a year ago Dr. Quinlan had seen the chewed leaves of the *Plantago lanceolata* successfully used to stop a dangerous hæmorrhage from leech-bites, in a situation where pressure could not be employed. He had searched out the literature of the subject, and found that although this herb is highly spoken of by Culpepper and other writers as a styptic, and alluded to as such in the plays of Shakespeare, its employment seems to have died out. Prof. Quinlan described the suitable varieties of plantain, and exhibited preparations which had been made for him by Dr. J. Evans, of Dublin, State Apothecary. They dried leaves and powdered leaves, conserved with glycerine, for external use; the juice preserved by alcohol, as also by glycerine, for internal use; and a green extract. He gave an account of the chemistry of the juice, from which it

appeared that it was not a member of the tannin series; and also described its physiological effect in causing a tendency to stasia in the capillaries of the tail of a goldfish, examined with a microscopic power of 400 X. He regarded its styptic power as partly mechanical and partly physiological. The juice in large doses he had found useful in internal hæmorrhages. The knowledge of the properties of this plant he thought would be useful in cases of emergency, because it could be obtained in any field and by the most uninstructed persons.—*Chemical News.*

## LOCAL ANÆSTHETICS.

When equal parts of chloral and camphor are triturated together, a clear, somewhat viscid, transparent solution results. This solution has considerable solvent power, and will take up a comparatively large proportion of morphia. Chloroform may also be added to it without precipitation of any portion of the dissolved constituents. Thus: ℞. chloral, camphor, āā ʒij, morp. sulph. ʒss, chloroform ʒj.—M. This may be applied with a camel-hair brush over the area to be incised, allowed to dry, and reapplied as freely as may be necessary to render the part insensible to pain. Amongst the anæsthetical mixtures for surgical purposes proposed by Professor Redier are solutions of camphor in ether and in chloroform. One drachm of camphor may be dissolved in two drachms of ether, or the same quantity in two drachms of chloroform. A useful anæsthetic mixture is prepared by the addition of crystallised acetic acid to chloroform, in the proportion of one part of the acid to twenty parts. These anæsthetic solutions are applied by the brush freely over the seat of pain, or the part to be incised. In some instances it may be better to moisten a cloth, or some cotton, and allow it to remain for a time in contact with the part. Pure carbolic acid has an anæsthetic effect when applied to the skin.—*Phil. Med. News*, Feb. 10.

## DEPUTATIONS TO THE GOVERNMENT ON FOOT-AND-MOUTH DISEASE.

On Tuesday two deputations, representing the Royal Agricultural Society of England, and the Shorthorn Society, had an interview with Lord Carlingford (with whom were Mr. C. L.

Peel, and Professor G. T. Brown), at the Privy Council Office, on the subject of foot-and-mouth disease. The deputations, which were received together, consisted of the Duke of Richmond and Gordon, President of the Royal Agricultural Society, Lord Vernon, Earl of Lathom, Lord Moreton, M.P., Marquis of Stafford, M.P., Sir A. K. Macdonald, Bart., Sir M. W. Ridley, Bart., M.P., Sir Brandreth Gibbs, Mr. Charles Howard, Mr. W. Wells, Mr. H. J. Little, Mr. W. H. Wakefield, Mr. Robert Russell, Mr. Joseph Martin, Colonel Kingscote, M.P., Mr. H. Chandos-Pole-Gell (President of the Shorthorn Society), Mr. R. C. Ransome, Mr. Robert Leeds, Mr. W. Sheraton, Mr. Walter Gilbey, Mr. J. B. Booth, Mr. E. W. Meade-Waldo, Mr. H. J. Sheldon, Mr. H. M. Jenkins, and Mr. H. J. Hine.

The *Duke of Richmond*, in introducing the deputations, said :— We had hoped that we should have had the benefit of the presence of the Prime Minister as well as yourself, as Lord President of the Council, to hear the facts which we wish to bring before his notice as well as your own, as being the Minister of Agriculture. The Royal Agricultural Society, as I need hardly remind you, represents the whole agricultural interests of the country. There is not a county in England that is not represented more or less in the Society. There are 8000 members, composed of peers, members of Parliament, owners and occupiers of land, tenant-farmers, those who are eminent in the manufacture of implements and manures, those who are eminent also in the veterinary profession ; in fact, every class connected with agriculture is represented among our members, and therefore it is that we think the time has come that, representing the agriculture of the country, we ought to bring under the consideration of the Government the very serious state in which the country is and has been in consequence of the prevalence of foot-and-mouth disease. As I had the good fortune of addressing the House of Lords last night, I do not propose to recapitulate all the arguments that I made use of then, but I should like to make one remark that I omitted last night when I spoke of the very great injury inflicted upon the stock of the country, and stated that I did not think that the great injury was appreciated by the public at large. Now, I find in the memoir of the late Mr. T. C. Booth, in the *Journal of the Royal Agricultural Society*, it is said, and it is known to be the fact, that owing to foot-and-mouth disease in the year 1873, only three calves were born alive, although the herd contained forty breeding animals. That is a fact which, I believe, nobody can gainsay ; and it shows the enormous injury which foot-and-mouth disease does to the stock of the country. I think I shall consult your convenience upon this occasion if I ask gentlemen to speak to the resolution which we have agreed to at a meeting of the Council to-day. We have thought it better to embody our views in one resolution, in order to take up less of your time. It will bring the matter prominently before you, and the gentlemen who will address you will

express their views upon the subject. I ought also to say that, with a view to save your time, as we are many of us also members of the Council of the Shorthorn Society, we have invited the Shorthorn Society to join us on this occasion, and they will express to you the views which they entertain.

*Sir Matthew Ridley* said that the resolution come to that morning was—"That in view of the great spread of foot-and-mouth disease throughout the country, the Royal Agricultural Society of England wish to urge upon the Government the necessity of taking such further steps as will prevent this disease being imported from foreign countries." He desired to point out, first, that this resolution was confined entirely to foot-and-mouth disease; and, secondly, it was confined only to the importation from foreign countries. With reference to pleuro-pneumonia, they were satisfied that the precautions taken in England were adequate. But foot-and-mouth disease could be spread by what is called mediate contagion, and he himself felt strongly that slaughter at the port of debarkation was not a sufficient safeguard. In England there were something like 34,000,000 or 36,000,000 of animals, and the whole of them were, generally speaking, subject to very strong restrictions. The loss that happened in the case of breeding animals was terrible. He knew of one recent instance in Northumberland where an owner of breeding ewes has suffered to the extent of £500 or £600. The lambs were born dead, and the ewes rendered unfit for producing lambs another season, and his lordship was not unaware of the loss thereby sustained. Just now the trade of many districts was at a standstill, and although in some districts the appearance of disease amongst a lot of lean Irish animals might not be of great importance, yet it was a most serious matter with the owners of breeding animals. Farmers felt it very hard that animals belonging to them could not be removed from place to place, while foreign animals were moved about the country without let or hindrance. The farmers were quite willing to submit to home restrictions, but they at the same time insisted upon the necessity of greater restrictions with regard to foreign importations. The disease was brought into this country in September, 1880, by the landing at Deptford of foreign animals, and it was from the importation of foreign animals that they must look principally to its coming in. He was connected with a part of the country where, he was happy to say, the borough authorities of the very large borough of Newcastle-on-Tyne, and the county authorities, had acted together in this matter. At a recent meeting of the Newcastle Farmers' Club the chairman of the committee which represented the management of the cattle trade in Newcastle seconded the resolution which he (Sir Matthew) then moved, and which was identical with that now brought before his lorship. Newcastle imported largely from Scandinavian countries, and 2500 head of cattle were there to-day. He had no wish that such an im-

portant trade should be interfered with, considering that there was no foot-and-mouth disease in those countries, but if the Scandinavian authorities were to stop their present severe restrictions, with the result of foot-and-mouth disease occurring in imported animals, he unquestionably should ask that Scandinavian animals should be stopped from coming into this country. He thought it was not unreasonable to ask that when the Privy Council were satisfied that foot-and-mouth disease exists in any country they should prohibit the importation of animals from that country. He was glad that the Privy Council had prohibited the importation of animals from France, but he was at a loss to know why a similar measure had not been enforced with regard to the United States. What he ventured to ask was that the Privy Council should be satisfied, before admitting animals from any country, that there were efficient means for detecting foot-and-mouth disease in that country, and that, if disease existed, animals should not be allowed to be imported. The Privy Council should do their utmost to ascertain where foot-and-mouth disease existed, and should prohibit animals coming from such countries. He was only asking the Government to carry out the powers which they possessed under the present Act. If they did that he was aware that agriculturists would still not have an infallible means of protection against the introduction of foot-and-mouth disease, but it would be doing a great deal, and the Government would thus satisfy a great interest that the utmost was being done under the present Act.

*Mr. Joseph Martin* said that he came as a tenant-farmer in the Isle of Ely. His lordship would probably remember that when a deputation of agriculturists came to the Privy Council on a previous occasion they stated that they would willingly carry out any restrictions enforced upon them; and all they now asked for was the carrying out of the provisions of the Contagious Diseases (Animals) Act, by imposing the restrictions which were necessary for the safety of our own flocks and herds. He was aware of the great delicacy of feeling with regard to the loss the public might sustain; but if the public knew the very great loss sustained when the disease attacked a herd of dairy cows, there would be far less said on that subject. He knew of one tenant-farmer who had 300 dead lambs this year before he had a single live one.

*Mr. H. J. Little* said that after the remarks which had been made, and after the debate in the House of Lords on the previous night, it might seem superfluous that the deputations should come there to urge the resolution upon his lordship; but as the Duke of Richmond had pointed out, the Royal Agricultural Society contain not only landowners and tenant-farmers, but also represented the agricultural interest in every particular. He need hardly say that of late years it had been under great difficulties that farming had been carried on at all. They had

suffered from bad seasons, bad crops, and from the low prices caused by foreign importations; but they had also suffered during the last few years by the outbreak of foot-and-mouth disease. During the past three winters, owing to these outbreaks, markets had been stopped in all parts of the country. He need not dwell upon the hardship which that was to farmers, neither need he dwell upon the horrible nature of the disease, so far as the breeding stock of the country was concerned. It was generally assumed that, when farmers came before the Government to urge any of their views, they came in a spirit of antagonism to the consumers of the country; but he wished to point out that the price of meat for the last few months had exceeded any price previously known, clearly showing that the present system of imports of cattle was not sufficient to reduce the price of meat to the consumer. As agriculturists they were prepared to submit, as Mr. Martin had justly stated, to any restrictions which might be imposed upon them; but they certainly thought it a grievance and a hardship that they should have to submit to restrictions while disease was continually being introduced by animals from abroad. It was, as he had said, under no ordinary circumstances that they had carried on their business; and what they asked was, that the legislature should not by their acts—or rather by their want of acting—add to these difficulties.

*Colonel Kingscote* said it was not the first time that he had been in that room on a similar mission, and he could truly say that although he came as a member of the Royal Agricultural Society, he represented more largely the consumer. In fact, although he represented a rather large county he was not returned to Parliament by the farmers, for his constituency included a large mining population, and he should not dare to be there and advocate what he did if he did not believe that the consumer was interested in the question as much as, if not more than, the producer. Having served on the Select Committee on Cattle Plague and the Importation of Live Stock, and also on the Royal Agricultural Commission, he was firmly convinced, from the evidence given to both those bodies, that if the trade of foreign live stock into this country were prohibited, although the price of meat might be temporarily affected, ultimately the price would not be enhanced one little bit. At the same time, he quite agreed with Sir Matthew Ridley that they did not ask for the total prohibition of foreign live animals coming into this country, but that greater precautions should be taken in that direction. Since England had become particular, and threatened to prohibit the importation of animals from America, that country was making very severe restrictions; and that, he thought, was a great thing for home agriculturists, who perhaps might look hereafter to getting some of their store cattle from America. There was one phase where foot-and-mouth disease affected this country very much, namely, the dairy interests, and in this way:

the farmers were afraid to make contracts for the regular delivery of a specified quantity of milk, as if foot-and-mouth disease broke out in their herds they would have to pay a heavy fine for not fulfilling their contract. That concerned the consumer. He trusted that his lordship, and everybody connected with the Government, would do the utmost to stop this insidious disease, the loss caused by which could not be estimated.

The *Duke of Richmond* said it would have been easy to have multiplied speakers, but it was thought that two or three would be sufficient to place the question before his lordship. He now begged to introduce Mr. Chandos-Pole-Gell, the President of the Shorthorn Society.

*Mr. Chandos-Pole-Gell* observed that very few words from him were necessary. He wished to call his lordship's attention to the fact that the deputation from the Shorthorn Society represented between 1500 and 2000 breeders of Shorthorn cattle in Great Britain, who owned between 100,000 and 150,000 head of cattle. One of their most important sources of revenue was from sales for abroad, but the present outbreaks of foot-and-mouth disease entirely deprived them of this trade, as neither Australia, New Zealand, Canada, the United States, nor several foreign countries would allow the importation of British animals. His Grace the Duke of Richmond had mentioned that some years ago, during one of the great outbreaks of foot-and-mouth disease, in the herd of the late Mr. Booth there were only three calves born alive. He himself was at that time a breeder of shorthorns, and had the disease in his herd about four years before. In that year he had only one animal born alive, and most of the animals affected by the disease never bred again. Colonel Kingscote had alluded to the loss caused to the dairy interest. He happened to live in a dairy district where the dairy paid the rent. He was in the habit of sending very large quantities of milk to Manchester, but owing to the restrictions rendered necessary by foot-and-mouth disease he was at the present time considerably short of dairy cows, and he dared not go into the market to buy them.

*Mr. J. B. Booth* said he came as a breeder of cattle. The business of cattle breeders had suffered severely from outbreaks of foot-and-mouth disease. Cattle breeding was a branch of farming which required greater capital than other branches, as it required greater time to develop and involved greater risk. Consequently the loss was a more serious matter when disease came into a breeding herd. The proportion of meat imported into this country in comparison to home-grown meat was, he believed, about $8\frac{1}{2}$ per cent., or something like that, and it was a serious question for consideration whether it was not necessary to take such measures as would keep our home stock free from disease. There were now very many more cases of disease than in the year 1882, and this was attributable to the enormous amount of importation from foreign countries in the

commencement of this year. He submitted that it was very little use putting restrictions upon farmers here if the Government did not stop this pestilential disease in the root instead of trying to stop it in the branch. He, therefore, strongly urged the necessity of stopping animals from all foreign diseased countries coming into this country alive, for he was certain that without that we should never be rid of foot-and-mouth disease in England. In his own county (Yorkshire) the restrictions put upon agriculturists had been loyally borne, with the hope that the disease would be stamped out, but he was very sorry to say that this had not been the case. At the present time the restrictions in Yorkshire prevented the transaction of any business whatever. They could not get animals away from the farms; they could not get any market for them; while animals coming from abroad were distributed throughout the country without let or hindrance. English farmers considered that a very great hardship. He hoped that the Government would see its way to putting severe restrictions on affected countries like France, Spain, and Portugal, and he believed it was from these countries that the largest number of diseased animals came, and also Germany; and that his lordship would see his way to give agriculturists some relief in this matter. To the cattle breeders of the country it was a matter of life or death.

*Mr. H. J. Sheldon*, as one of the largest owners of herds and flocks in England, echoed what Mr. Booth had said—that it was a matter of life and death to the breeder. In his own herd he had suffered great losses. Ten years ago he had fourteen valuable animals completely spoilt—viz. they cast their calves, and had never bred again. He thought that many people could not be aware of the hardship the restrictions were to people living, like himself, on the borders of two counties. He resided on the borders of Warwickshire and Worcestershire, and from the 14th of February to the 1st of April he could not send animals to any railway station or to any town for sale. He had £1200 worth of stock ready for the market, and could not dispose of any except in Northamptonshire. In his own market town, where the butcher generally took £100 worth of stock a month from him, he could not now take a head. He advocated the guarding of infected areas most closely, and that no animal, with or without license, should be allowed out of an infected area; but he did not think the restrictions should be enforced outside the areas, especially while the foreigner was allowed to bring his animals into the country.

*Lord Carlingford*, in reply, said: I am very glad indeed to receive these two important deputations, presided over by the Duke of Richmond, and though, as several gentlemen have said, the discussion in the House of Lords last night will naturally limit very much what I need say, as it has limited the observations of the Duke and others, I am very far from agreeing with one of the gentlemen in saying that this interview can be super-

fluous. I think it will be most valuable to me and to this department. My feeling on this occasion is very much like the feeling expressed by Colonel Kingscote and Mr. Little, and others, viz. that I both publicly and privately feel first for the agriculturists—that is my private interest—and in the office I at present hold, I conceive it my public duty to think first of the agricultural interest, and next of the interest of the consumer. But I need not say that, as a member of the Government, it is my duty—as it is of the Government itself—never for a moment to lose sight of the general interest. The question is, How are these interests to be reconciled? In administrating the Contagious Diseases (Animals) Act of 1878—this very good and successful Act, as I took the liberty of saying to his Grace last night—there is this difficulty, for it is a constant balancing of opposite considerations: one feels oneself perpetually called upon to say whether a gain in one direction will not cause a greater loss in the other. It is a perpetual balancing of opposite interests and opposite considerations—advantages and disadvantages. What I understand his Grace and others to suggest to-day, and ask from the Government, is not to urge the total prohibition of imports of foreign live animals, but the prohibition of live animals from every country as to which we are not satisfied here that no foot-and-mouth disease exists in it. (Hear, hear.) That is very intelligible; but I am bound to say that it goes a very long way indeed in the direction of total prohibition. I noticed, as the discussion went on, some speakers required the exclusion of Scandinavian animals, and another gentleman of the foreign animals which range over the country. Well, I need only say that the foreign animals which range over the country are the small minority of animals which are not slaughtered at the ports, and even in the case of those Scandinavian countries, if the foot-and-mouth disease is detected in any cargo the whole of that cargo is slaughtered.

*Mr. Booth.*—It was only from countries which are affected that I spoke as to.

*Lord Carlingford* (continuing).—Every one of these cases has to be treated according to our view of these questions here, each has to be treated upon its own merits, and at the very responsible discretion of the Privy Council. I should be going too far if I said that the Government were prepared to prohibit absolutely the landing of all foreign animals from any country as to which they were not satisfied of its absolute freedom from foot-and-mouth disease. We have, of course, to consider what the effect would be. Now, take the case of Germany. In the course of the year 1882, we got from Germany a supply of upwards of 430,000 sheep—no trifling supply—and out of that total what do you suppose was the number suffering from foot-and-mouth disease? There were but fifty-seven in the whole of that number. You will say at once that the cargoes in which they came were also a source of danger; still, I think you will agree

with me that it would have been no small responsibility to have stopped the arrival of that immense supply in order to avoid a small degree of loss.

*Mr. Sheldon.*—They could come dead.

*Lord Carlingford.*—Well, of course, that raises one of the most vital questions in the whole matter. Of course, there is no physical impossibility in the way of their coming dead, but the question is, have we any right to insist upon the creation of a dead-meat trade?

*Mr. Sheldon.*—The Germans will create it in a few days when they cannot send their animals alive.

*Lord Carlingford.*—I believe the opinion amongst those most competent to judge is that no large dead-meat trade from the Continent would take place. I do not say that a large dead-meat supply will not come into the country, but I think it is most likely to come from the far ends of the world. The belief of very good judges is that if our live imports were put an end to, the foreign breeders and dealers would not find it worth their while to absolutely revolutionise their trade, but would have recourse, in the ordinary way, to the great markets of the Continent. If you look to the last report of the Veterinary Department of this Office, you will find an expression of opinion in these words, "So long as the Continental markets offer a fair opportunity of disposing of the animals, the breeder would not be likely to alter his system of trading, and convert his live stock into a perishable commodity for exportation, instead of sending them in the usual course to live-stock markets. Under all the circumstances it would be well to be prepared to accept all the consequences which would result from the withdrawal of the live-meat supply which we receive from the Continent." Well, now, as to the proportion of our home supply that we derive from abroad, I believe that has never been ascertained. I believe one gentleman spoke of 8½ per cent., but I don't know upon what authority that information was given.

*Mr. Booth.*—From the information collected in 1878.

*Lord Carlingford.*—Well, we know that even a very small decrease of supply leads to a very great enhancement of price. The figures given in the new Report of the Veterinary Department may well make us hesitate before taking any revolutionary course in this matter. I find that that the proportion per cent. of foreign animals brought into the Metropolitan Cattle Market and into the Foreign Cattle Market in 1882 was, cattle 50 per cent., sheep 61 per cent., swine 94 per cent. I should like also to give you these figures which, as far as they go have some consolation in them with respect to the number of diseased animals which we have been lately importing compared with the past. During the year 1882 the whole number of animals which arrived in this country affected with foot-and-mouth disease was 595. In 1376, as stated by the noble Duke in his speech on the second reading of the Bill of 1878, the

number of animals so arriving affected with foot-and-mouth disease was 9359. Of course, the number of animals actually imported does not express the whole of the danger incurred, although it is a very important fact; but I think there is this to be said; that, provided the animals coming in the same cargoes with the infected animals can be kept separate at the Foreign Animals Wharves, and rapidly slaughtered, the amount of danger of disease coming into the country is practically confined to the animals in which the disease has already exhibited itself. Of course, if an animal is slanghtered before the disease has exhibited itself, there if no danger of infection. We have had no means of tracing this temporary and unfortunate increase of foot-and-mouth disease. If I had any facts whatever bearing upon the subject I should be very happy to put them before you.

The *Duke of Richmond.*—I thought it was admitted that, coincident with the importation of disease from France, the disease increased in this country. I think that is proved from the figures which I took from the agricultural returns, and quoted last night.

*Lord Carlinford.*—I am not aware of that last statement. I don't dispute it, because it seems so probable that disease did arrive at Deptford in the autumn of 1880; and it is impossible to say how much mischief we may owe to the escape of infection from the foreign animals wharves; but I have no reason to suppose that there is any connection between the foreign cattle wharves and the increase of disease in this country. But perhaps I may say that by dint of these restrictions, which I know are so extremely inconvenient and onerous in many cases, we certainly have got the disease down to a very low point at this moment. I should like, gentlemen, to remember that at all events these restrictions—burdens and nuisances as they are—are not without effect. I think it would be quite a mistake to suppose that they are endured for nothing; I think that very often they are rewarded, and at this moment we have got this disease down to a low ebb. In Scotland, I am happy to say, where the local authorities certainly manage these matters wonderfully well, they have absolutely conquered the disease, which was brought from Ireland a few weeks ago; and in this country the last return of the whole of England and Wales is only eight fresh cases, and I hope that that happy state of things may continue.

*Mr. Booth.*—Perhaps the case has not yet been reported to the Privy Council of twelve animals from Ireland which came into Yorkshire on Wednesday last, all of which are now down with foot-and-mouth disease.

*Lord Carlingford.*—No; I think that has not yet been reported. Well, I cannot say much more than I said last night—viz. that we shall use our discretion where there is, as we think, enough to be gained by it on the one hand, and where the loss

of supply on the other is not too great compared with the amount of additional security that we can hope to gain. We shall not shrink from any responsibility in cases of that kind; where we think that a positive and sufficient advantage is to be obtained, we shall not shrink from using the powers of the Act in stopping the animals from any specified country, and I think that considerable influence in that way could be used upon the Governments of foreign countries for the purpose of checking disease and preventing the export of diseased animals. In that respect, and in all others, you may depend upon it we shall use our best care to keep this mischievous disease within as narrow bounds as possible, even if we cannot exterminate it, which would be a great blessing.

The *Duke of Richmond* expressed the thanks of the deputations to Lord Carlingford for his courtesy, and for going so fully into the matter; and remarked that they had done their duty to the agriculturists of the country in bringing before the Government the very serious state in which the farmers found themselves. They hoped that when the Privy Council saw fit they would put the powers given by the Act of 1878 into operation, in order to prevent the disease coming from abroad. They did not ask that all countries should be scheduled, but that when a country was sending such an enormous amount of foot-and-mouth disease, the Privy Council should not hesitate to exercise the powers which they undoubtedly possessed to prevent animals coming from that country.

The deputations then retired.

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## ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

At the last monthly Council, present—His Grace the Duke of Richmond and Gordon, K.G., President, in the chair.

### Veterinary Committee.

*Lord Egerton* (Chairman) reported that the Committee observed with satisfaction that the Privy Council Order of the 28th March forbids the landing of animals from France from the 6th April to the 6th of May.

This report was adopted.

### Journal Committee.

*Earl Cathcart* (Chairman) presented the report of the Committee on several matters. They recommended that an application for the exchange of publications with the Royal Society of New South Wales be granted.

Professor A. P. Thomas had completed for the *Journal* his paper on the "Natural History of the Liver-fluke and the Prevention of Rot." The following preventive measures were recommended by him:

"1. All eggs of the liver-fluke must be rigorously destroyed; manure of rotten sheep, &c., must not be put on wet ground.

"2. If sheep are rotten let them be sent to the butcher at once, unless they are specially valuable and are not badly fluked. If kept, they must not be put on to wet ground.

"3. Care must be taken to avoid introducing eggs of the fluke, either with manure or with fluked sheep, or in any other way. Rabbits and hares must not be allowed to introduce the eggs.

"4. All heavy or wet ground must be thoroughly drained.

"5. Dressings of lime or salt should be spread over the ground at the proper seasons, to destroy the embryos, the larval forms of the fluke, and also the snail which harbours them.

"6. Sheep must not be allowed to graze closely, for the more closely they graze the more fluke germs will they pick up.

"7. When sheep are allowed to graze on dangerous ground they should have a daily allowance of salt and a little dry food.

"If all farmers will unite in carrying out the above preventive measures, suggested by the knowledge of the life-history of the parasite, there is no reason why the fatal ravages of the destructive fluke should not be so restricted that the losses would at once be reduced to a comparatively trifling amount. There is at present one obstacle in the way of the total extermination of the fluke. So long as rabbits and hares have free liberty to convey the infection from one district to another there will always be a danger of a fresh outbreak in places where the fluke had for the time been driven out. And for rabbits in a state of nature we cannot adopt preventive measures in the same way that we can for domesticated animals, so that on wet waste lands the breed of flukes may be constantly kept up. Very much, however, may be effected by united action; and if the preventive measures which are now suggested are strictly carried out by all we shall hear no more of disastrous outbreaks of the sheep-rot, and something at least will have been effected towards raising the fortunes of British agriculture."

This report was adopted.

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## ROYAL COLLEGE OF VETERINARY SURGEONS.

### QUARTERLY MEETING OF COUNCIL, HELD APRIL 2ND, 1883.

G. FLEMING, Esq., President, in the chair.

*Present.*—Professors Axe, Robertson, and Simonds; Messrs. Anderson, Batt, Broughton, Cartledge, Cartwright, Collins, Cox, Dray, Harpley, Perrins, Santy, Simcocks, Simpson, Taylor,

Whittle, Woods, Wragg, Sir Frederick Fitzwygram, and the Secretary.

The *Secretary* read the notice convening the meeting.

The minutes of the previous meeting were taken as read and confirmed.

It was agreed that Professor Walley's motion should remain suspended.

The *Secretary* said he had received letters from Professor Walley, Mr. Reynolds, and Mr. Blakeway, regretting their inability to attend the meeting.

The *Secretary* read a letter from the North of England Veterinary Medical Association, containing a resolution passed by that Society with regard to pupilage and the practical examination of students.

It was agreed that the letter should be recorded, and a letter of acknowledgment sent in reply.

*Memorial from Scotland.*

The *Secretary* read a letter from Mr. C. Cunningham on behalf of three Scottish Veterinary Medical Associations.

*Mr. Taylor* proposed that the subject should be referred to a committee at a future meeting, subsequent to the annual meeting, and that the secretary should acknowledge the letter.

*Mr. Woods* seconded the motion, which was agreed to.

The *Secretary* said that through Mr. Harpley, executor of the late Mr. William Field, the Museum had been presented with a very handsome case of horseshoes, together with some others which had taken the prize at the Exhibition of 1862. A letter had also been received from Mr. Harpley stating that Mr. Field had left a sum of £1000 towards the new building, provided a like sum was obtained within a year.

*Mr. Dray* moved that the Council, having received intelligence of the demise of Mr. William Field with much regret, the Secretary should be instructed to forward a letter of condolence and sympathy to his family in the loss they had sustained. The name of Field was a household word among them, and although that gentleman had attained the age of seventy-nine, he (Mr. Dray) thought there was little doubt that his life would have been prolonged had not the sudden death of his son, in consequence of an accident in the hunting field, caused such a severe shock to his mind and system.

The *President* said it was almost superfluous to add to the words of Mr. Dray. In Mr. Field the profession and public had a friend and a servant. In London his integrity in his profession had become almost a proverb. Mr. Field's donation was the first the College had ever received, and it showed his sense of the importance of their profession and College.

The motion was agreed to.

The discussion of the terms of the bequest was adjourned until the next meeting.

Diplomas were granted to Messrs. Gray, McGrath, Kilburn, and McArthur, as holders of the Highland and Agricultural Society's certificate.

*The Report of the Examination for the Royal Agricultural Society Prizes.*

The *Secretary* read a letter from Mr. Jenkins, the Secretary of the above Society, stating that in consequence of the paucity of candidates for the examination, in future prizes would no longer be offered by the Royal Agricultural Society.

The *President* said he attended the meeting of the Veterinary Committee of the Royal Agricultural Society when the subject was discussed, and could not help feeling a sense of humiliation that the prizes had been so badly competed for. In the course of seven years only nineteen competitors had appeared; and he could not say a word in defence of the profession. He thought that the best thanks of the profession were due to the Royal Agricultural Society for its generous effort towards establishing a better practical knowledge of cattle pathology amongst the younger members of the profession. No one could possibly complain of the course the Society had adopted.

*The Report of the Court of Examiners.*

The *Secretary* read a list of the names of students that had been admitted at the various colleges.

*The Report of the Registration Committee.*

The *Secretary* read the report.

*Mr. Dray* moved, and *Mr. Taylor* seconded, that the report be received.

The motion was carried.

*Mr. Dray* said the amount collected by the Secretary was £4217 17s. The gross credited account would be about £3344 5s.

*Mr. Simcocks* asked on what principle the Committee decided to admit some of the applicants.

The *President* said that affidavits were sent in by these men to the effect that they had been five years in continuous practice, together with certificates of moral character, and those who were not objected to by members of the profession were of course passed as eligible. There had been so much hearsay evidence against them, that all protests had to be made in the form of an affidavit, oath against oath, and in every case in which that had been done, the affidavit of the members of the Royal College had been taken in preference to that of the applicant. The sittings of the Committee appointed had been long and tedious; they being most anxious that justice should be done to the public and to the applicants. Although a man might have been admitted to the Register, his name could still be removed if it was afterwards found that he had made a false declaration.

*Mr. Cartledge* said that to his own personal knowledge several

members had been admitted who, he thought, ought not to have been; but he had not chosen to take action in the matter.

*Prof. Simonds* asked whether the Secretary could inform the Council what was the total number of members of the Royal College of Veterinary Surgeons.

The *Secretary* said he thought the total number to date was about 2600.

*Mr. Taylor* said although the number of those men that had passed for registration under the Act might appear very large, he thought, under the circumstances, the Council ought to be liberal, for those men were not veterinary surgeons but only veterinary practitioners.

The *President* said that the only thing that registration did was to exempt them from the penalties of the Act of Parliament. He did not himself think that by the addition of those names to the Register the importance or dignity of their profession was in the slightest degree diminished.

*Mr. Simcocks* said he wished to move an amendment to the report. He felt that the reading of the Act was that those gentlemen selected for registration should receive intimation to that effect. In his opinion they should get nothing of the sort. The fact of their not receiving their money back would be sufficient intimation. He was sure that such letters would be framed and exhibited as diplomas.

*Mr. Cartledge* proposed that a copy of the list of existing practitioners be sent to each of those existing practitioners who were so registered. If that were done every man would find his name included in the list, but could make no improper use of it.

*Mr. Simcocks* said he would withdraw his amendment and second Mr. Cartledge's proposition.

*Mr. Dray* said he begged to move the adoption of the recommendation of the Registration Committee.

The motion as amended was put to the meeting and carried.

*Mr. Taylor* proposed and *Mr. Santy* seconded a vote of thanks to the Registration Committee, for the very satisfactory manner in which they had fulfilled their duty.

The motion was agreed to.

*Mr. Whittle* proposed that the fees of those who had been rejected for registration should be returned, with an intimation that their claim having been considered was not substantiated.

*Mr. Taylor* seconded the motion, which was agreed to.

### *The Report of the Finance Committee.*

The *Secretary* read the report of the Financial Committee.

*Mr. Dray* called attention to the expense incurred by the Examiners going to Scotland. He thought some action ought to be taken, that one Examiner should be elected for Scotland and one for England, which perhaps might obviate the difficulty. After all expenses had been paid they had only received a small balance from Scotland in the shape of fees.

The *President* said it had been decided by the Council that as far as possible the same Examiner should examine both in England and in Scotland. After next year the examinations in England and Scotland would be only two in number; that at once got rid of one item of expense. Many of the Examiners lived in the south, therefore they had a very long way to go. The small income was due to the small number of students in Scotland, and if the number had been larger the travelling expenses would have been the same.

*Mr. Broughton* proposed the adoption of the report of the Finance Committee.

*Mr. Whittle* seconded the motion, which was agreed to.

Cheques were ordered to be drawn.

*The Report of the Committee appointed to investigate a Case of Fraud by a Member of the Royal College of Veterinary Surgeons.*

The *Secretary* read the report of the Committee appointed to consider the case of Mr. Gaskin.

On the motion of *Mr. Taylor*, seconded by *Mr. Dray*, the report was received.

The *President* said he was present at the meeting when the case of Mr. Gaskin was fully investigated. As far as he could judge, the Committee were not at all impressed with his truthfulness. He denied several acts of which he had been guilty until he was reminded of them from the information received. The case had excited so much attention in the public newspapers, and the frauds Mr. Gaskin had practised in the name of his profession had been so great, that the Committee felt there was no other course open to them than to make the recommendation they had done. It was a painful thing to make such a recommendation; but the interests of the profession, no less than those of the public, required that such cases should be investigated and dealt with by the College.

*Mr. Dray* moved that the report be adopted, and the name of Mr. Arthur Gaskin be removed from the Register.

*Mr. Taylor* seconded the motion which was agreed to.

The *President* asked whether it was the wish of the Council that the names of those gentlemen removed in that way from the Register should appear in the report, and in the published reports of the proceedings. He thought that the public should be informed of the fact.

It was resolved that such a course should be adopted.

*The Election of an Examiner for England and Scotland instead of Mr. Dan Gresswell.*

The *President* said that during Mr. Gresswell's illness, which he was grieved to say had terminated in death, his (Mr. Gresswell's) son, who practised at Nottingham, had been appointed. It had now, therefore, become necessary to appoint a

successor in his stead. In the person of Mr. Gresswell they had lost a gentleman who not only stood high in his profession in his own locality, but whose name was known throughout the country. He had been Mayor of Louth, and had been an Alderman of his native town for a number of years.

*Mr. Dray* moved "That the Secretary be instructed to send a letter of condolence and sympathy to his son and family for the loss they have sustained."

*Mr. Taylor* seconded the motion which was agreed to.

Messrs. C. Gresswell, Archibald Robinson, Alexander Robinson, Borthwick and McGillivray were nominated.

The ballot was then taken, and Mr. Archibald Robinson was declared elected in the place of Mr. Dan Gresswell.

The *Secretary* then read the Obituary List.

## SPECIAL MEETING.

### *The Consideration of the Annual Report.*

*Mr. Taylor* proposed that the President, the Treasurer, and the Secretary, be appointed as the Committee to draw up the Annual Report.

*Mr. Whittle* seconded the proposition which was carried.

### *The Annual Meeting.*

The *President* said that the Annual Meeting would be held on Monday, the 7th of May. The question to decide was whether it should be held in London, Edinburgh, or in Dublin, either of those places being permissive.

*Mr. Simcocks* moved, "That the Annual Meeting be held in Dublin." In the interests of the Royal College of Veterinary Surgeons he thought that, as an attempt had been made to establish a Licensing College in Dublin, it would be as well to hold their annual meeting in that city in order to disabuse the mind of the public of such an idea. The novelty would be so great that he was sure three fourths of the Irish members would attend; and a great many of their Lancashire friends had promised to attend.

*Mr. Taylor* said he was sure a visit to Dublin would do the members a great deal of good; and as the opportunity would not occur again for three years he had great pleasure in seconding the proposition.

*Genl. Sir Fredk. Fitzwygram* supported the proposition.

The *President* said that there were one or two objections to such a course being adopted. In the first place their experience in Scotland with regard to the attendance of members was not a very happy one. It had been proposed this year to hold a meeting of the British Veterinary Association in London, and the proposition had been so widely and favorably received that he thought it would collapse if a meeting of the Royal College

were held in Dublin. It would be a disappointment to about one half of those members of the profession who had signified their intention of joining that Association. He thought that a little longer notice should be given to their Irish colleagues before a meeting in Dublin was decided upon.

The *Secretary* read Clause 11 in the Supplemental Charter, relating to the question, and the Council decided that the annual meeting could not legally be held out of London.

*Mr. Simcocks* withdrew his motion, and it was agreed that the annual meeting should be held at the Freemason's Tavern.

*The Annual Dinner.*

It was agreed that the annual dinner should be held at the Freemason's Tavern.

The *Treasurer* said he had received from several members letters complaining of the charge for the dinner last year. The cost had been about 30s. per head.

The *President* proposed that the number of guests and the cost of the dinner should be left in the hands of a Dinner Committee.

A Dinner Committee, consisting of the President, Messrs. Axe, Batt, and Wragg, was accordingly appointed, and it was agreed that the cost should not exceed 25s. per head.

The following Scrutineers were appointed:

Messrs. A. Broad, George Broad, E. Batt, Sheather, Peacock, Charles, Hancock, Shave, P. Spooner, Pottinger, Talbot, jun., and Mr. Gibbings.

*The Register.*

The *President* said that the Register would be shortly ready to go to the printer, and it was a question for the Council to decide how many copies should be printed, and whether it would not save the Secretary much time and trouble if the sale of the Register were entrusted to some bookseller in London.

It was decided that the finding of a suitable publisher should be left in the hands of the President.

*Professor Simonds* suggested that the Secretary should be instructed to send advertisements to the journals of the names of the publishers of the Register.

*Ballot-papers.*

*Mr. Wragg* asked whether the ballot-papers should be kept open for an hour after the meeting. There was an intimation to that effect on the paper. Last year it was not done.

*Professor Robertson* asked if the name of the voter was on the ballot-paper; if so, the ballot-paper was no ballot-paper at all, because whoever received the paper then knew who was voting for a particular person. He thought many of the members had a decided objection to voting in that fashion.

*Mr. Whittle* proposed that the name be removed from the outside of the envelope.

*Mr. Taylor* seconded the motion, which was agreed to.

*Mr. Cox* called attention to a letter that had appeared in the *Veterinary Journal* for the current month, written by Professor Walley, complaining of the way in which the examinations were carried on, and stating that the Examiners expected answers that would often puzzle their elders, and made no allowance for the nervousness and anxiety of the student. He thought such remarks appearing in a public journal were extremely indiscrete, and tended to disturb the equilibrium of the students coming before the Examiners, they thinking that they would have an unfair examination. Invariably, if the teachers had not brought their students up to the requisite standard, the examinations were looked to to find it out. The Colleges had frequently complimented the Examiners on picking out the best men, and the students themselves had expressed their acknowledgments of the kindness they had received when undergoing their examinations. He did not think that anything exacting had ever been exercised towards the students. He thought it was due to the Council that he should call their attention to the matter, and that it was also due to the Examiners that they should be supported by the Council in carrying out their duty.

*Professor Robertson* said he was thoroughly satisfied that the students received a just and fair examination; at the same time he thought that the examinations of the present day were somewhat harder than they were fifteen or twenty years ago. They all knew that examinations were only approximative, and sometimes it happened that a good man made a bad appearance for the want of ability to bring out knowledge that he really possessed. He felt sure that the Council, as it had done before, would most heartily support the Board of Examiners, and give them all the consideration they required.

The *President* said he thought Mr. Cox was perfectly justified in bringing the matter before the Council. The position held by the Examiners was one of great responsibility; upon their shoulders was placed a trust which he was sure they discharged to the very utmost of their ability. He was sorry Professor Walley was not present, because he never liked to pass remarks about absent people. He considered the letter referred to calculated to convey an altogether false impression to the minds of the students as to the manner in which their examinations were conducted. There was sometimes a feeling engendered in Edinburgh that students were not fairly examined. All the schools except one were well represented on the Council; and if anything was amiss in the examinations he was certain the Council would entertain a complaint and thoroughly investigate it.

*Mr. Dray* proposed a hearty vote of thanks to the President.

*Mr. Whittle* seconded the motion, which was unanimously agreed to.

# UNITED STATES VETERINARY MEDICAL ASSOCIATION.

The semi-annual meeting of the United States Veterinary Medical Association was held at Young's Hotel, Boston, on Tuesday, March 20th, the President, Williamson Bryden, V.S., Boston, in the chair. Over forty members, mostly from the Eastern States, were present, among them Dr. Thayer, of the United States Treasury Cattle Commission; Profs. Liautard, Michener, Robertson, and McLean, of New York; Drs. Wood, of Lowell; Blacklock, of the Metropolitan Railroad; Flagg, of New Bedford; Miller, of Philadelphia; B. Pierce, M.R.C.V.S., of Springfield, and others.

The following letter to Mr. Bryden from the President and Secretary of the International Veterinary Congress, to be held in Brussels next September, was read, a translation of which is herewith given:

"W. Bryden, President United States Veterinary Medical Association.

"Mr. President,—Some time during the month of September next an International Congress of Veterinary Medicine will take place at Brussels. The governments of most of the countries of Europe will be more or less desirous of being represented officially at these international assizes. In order that the work whose organisation we have undertaken may be as complete as possible it would be proper that the veterinary medicine from beyond the sea shall be represented at this Congress.

"We hope, therefore, Mr. President, that you will be kind enough to use your influence to have the United States represented by a special delegate at this Congress, a programme of which you will find enclosed.

"Receive, Mr. President, the expression of our respectful sentiments, on behalf of the Committee of Organisation.

[Signed] "A. Thiernesse *President.*
"Dr. Wehenkel, *Secretary.*"

After the reading of the letter it was voted to send a delegate to Brussels. Dr. Liautard suggested that some one who could speak French ought to go. His name was then proposed, but the matter was finally left to be acted on at a special meeting of the Board of Censors, to be called by the President during the summer.

After dinner the evening was passed in discussing subjects professional. A beautiful specimen of osteo mellitis of the scapula and humerus of an aged pony was presented to Prof. Liautard by Dr. Stickney, after being exhibited and discussed. No one present had ever seen a case in the horse. Dr. Stickney gave a very interesting description of the case. Dr. Miller also described a case of softening of the bones of a colt sixteeen months

old, said to have been caused by syphilis. Spinal meningitis in horses was then taken up. Dr. Verry believed it to be a miasmatic disease, due to the presence of germs; this was endorsed by several members and doubted by others. The President described a frame sling for horses used in several stables in Boston. It is a strong frame about seven feet long and two and a half feet wide, with a wide piece of canvas to support the animal. He said the frame should always hang from a central point. When any sling is fastened overhead to four corners, it is liable to chafe and produce sores.

Tarsal tenotomy was then reviewed. Dr. Balley, of Portland, Me., and Dr. Penniman, of Worcester, had both practised it with success, and preferred it in most cases to firing and blistering. Prof Liautard and Dr. Peabody of Providence had also performed the operation, but were opposed to it, especially in in cases of interarticular disease. The President could not see why in many cases the operation should not give some relief, his belief being that the projection in bone spavin came from the continued strain on the metatarsal flexor in limbs of a certain conformation. He said, "like firing and blistering" this is a barbarous operation and trick. It is treating one of the secondary effects instead of adjusting the limb and assisting nature. He also gave it as his opinion that the mysterious thing, heredity, is greatly exaggerated in accounting for diseases peculiar to horses' limbs, the after-birth history being a more important factor, and far oftenest the source from which diseases like bone spavin are derived. He believed that if a herd of spavined horses and mares were turned out and left to themselves in a country suitable for their comfortable existence, that such a disease would in time disappear from their offspring. Prof. Liautard did not agree with this, as it was contrary to the views of European scientific men. Dr. Stickney also opposed the theory.

A case of atrophy of the muscles of the dorsal region on one side, three weeks after the animal was cast in his stall, was mentioned by the President. Abortion in cows, purpura hæmorrhagica, scarlatina, and variola equina, were also discussed. About a dozen new members were admitted, and as many more applied for membership. The meeting was most successful and enjoyable.

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## NEW MEMBERS OF THE PROFESSION.

At the meetings of the Court of Examiners of the Royal College of Veterinary Surgeons, held on the 28th, and 29th March, 1883, the following students from the Royal Veterinary College were admitted members of the Profession:

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|---|---|
| Mr. Young, Henry A. . . | The Ford, Dunmow, Essex. |
| — Hartley, Charles . . | Crewe, Cheshire. |

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|---|---|---|
| | Mr. Pinel, Herbert Ernest . | Coin Hâtain, St. Lawrence, Jersey. |
| — | Nuthall, Charles Edwin | Down Hall, Kingston, Surrey. |
| — | Baker, Edward Whitley | 45, Emmanuel Street, Mile End, Portsmouth. |
| — | Blenkinsop, Layton J. . | 39, Hilldrop Crescent, Camden Road, London. |
| — | Morton, John . . . . | St. John's, Worcester. |
| — | Robinson, Martin . . | Birdwell, Barnsley, Yorkshire. |
| — | Marriott, Samuel James | The Grove, Milton, Northampton. |
| *— | Parr, John George . . | Egerton Villa, St. James' Road, Leicester. |
| — | Hazelton, Edwin Hills . | 9, Prospect Place, Southampton. |
| — | Page, Charles Wood . | The Green, Banbury, Oxford. |
| — | Daly, James Vincent . | Liffey Bank, Dublin. |
| *— | Bloye, William Harvey | 8, Westminster Terrace, Mutley, Plymouth. |
| — | Hart, John Bush . . . | Dunhomtollah, Calcutta. |
| — | Barry, David M. . . . | Churchtown, Cork, Ireland. |

The following students passed their *Second Examination* on the 4th, 5th, and 6th April.

| | |
|---|---|
| Mr. Smith, Joseph. | †Mr. Whigham, H. B. |
| — Bugg, Walter. | — Drewitt, W. |
| — Selfe, H. E. C. | * — Hammond, J. |
| — Turner, T. W. | — French, A. C. |
| — Watson, J. G. | — Butler, E. R. |
| * — Britton, T. A. | * — Pemberton, H. L. |
| — Bazley, F. | — Taylor, W. H. |
| — Walker, J. | — Willis, W. |
| — Brookes, W. | — Rickards, J. E. |
| — Wilkie, H. C. | — Catmull, E. J. |
| * — Piesse, A. C. | — Golding, G. H. |
| — Mahon, Frederic Charles. | † — Taylor, E. |
| * — Evans, G. H. | |

The following students passed their *First Examination* on the 7th, and 9th April.

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|---|---|
| Mr. Stephens, F. M. | Mr. Lansley, G. D. |
| — Gooderson, F. R. P. | — Blancard, N. |
| * — Lord, R. A. | — Bates, Joseph. |
| — Lacey, B. | — Lucking, T. S. |
| — Sangster, A. E. | † — Vickery, J. T. |
| — Tebbot, J. M. | — James, W. |
| — Cox, G. C. | * — Rogers, H. G. |
| — Polglase, R. | — King, G. E. |

* Marked thus, passed with *Great Credit.*
† Marked thus, passed with *Very Great Credit.*

## ROYAL VETERINARY COLLEGE—MATRICULATION EXAMINATION, April 25th and 26th, 1883.

*Successful Candidates, in order of Merit.*

| | |
|---|---|
| Mr. J. A. Hives. | Mr. W. Sheel. |
| „ H. Goodwin. | „ W. Western. |
| „ L. P. Rees. | „ J. A. Sudren } Equal. |
| „ W. E. Dain. | „ C. A. Johns } Equal. |
| „ L. Silverthorne. | „ C. K. Dobson. |
| „ J. Porter. | „ H. Broad } Equal. |
| | „ W. E. Matthews } Equal. |

## ROYAL VETERINARY COLLEGE—CLASS PRIZES.

Helminthology.—Class Prizes.—On account of the practically equal merits of two of the competitors, it has been resolved to divide the prize usually awarded for the best set of MS. notes of lectures given during the winter sessions. A second prize has also been given to a competitor whose notes are almost equally meritorious. Thus, Mr. W. Harvey Bloye and Mr. Layton J. Blenkinsop together take the first prize, the second prize being awarded to Mr. A. Hassall. Some notes have been contributed by Mr. H. Axe, deserving of honorable mention.—Eds.

Botany.—Class Prizes.—At the opening of the Winter Session at the Royal Veterinary College it was announced that no award had been made. We have now much pleasure in stating that the prize for the best collection of British flowering plants has been awarded to Mr. George Edward Fryer, and that a similar award has been made to Mr. Joseph Bates for the best collection of British grasses.—Eds.

## ROYAL (DICK'S) VETERINARY COLLEGE.

The annual presentation of prizes to the students attending the Royal (Dick's) Veterinary College took place on Thursday, March 30th, in the Council Chambers. There was a large attendance of members of the Town Council, the Professors of the Dick College and others.

*Lord Provost Harrison*, who occupied the chair, said he was very glad to see so large an audience and so many young men connected with this College. It was exceedingly pleasant to learn that the last year—the one for which they were now acting, had been the most profitable both to the students and in

every other way of any year since its commencement. They also had the largest number of students, and he was sure they had done the best work, that had ever been done in their College. (Applause.) Everything, so far as he could learn, had gone on in a very pleasant manner. There had been over 130 in the class, a number which had never been reached before. The Lord Provost then expressed the hope that the class would go on increasing until it was necessary to enlarge the College. (Applause.)

*Professor Walley* said he could honestly say that on the whole the competitions during the past session, had been of a very high character, and in many of the subjects the papers had been exceptionally excellent. Two of the students had run very close together, although the one had kept ahead all the time, so that he had the largest share of the prizes. In conclusion, Professor Walley said he was pleased to say that so far as the harmony between class and teachers was concerned, of all sessions the past session was the pleasantest. (Applause.)

The *Lord Provost* then presented the prizes to the successful competitors as follows :

*Certificate for best Matriculation Examination.*—Mr. Marsden Banff. College Medals (*Gold*)—Physiology, 1881-82; Anatomy, 1881-82 ; Chemistry, 1880-81 ; Veterinary Medicine and Surgery ; Cattle Pathology, 1882-83 (presented by A. Harris Esq.) —Arthur New, Ampthill, Beds. College medals (*Silver*)— Junior Anatomy, 1880-81 (Professor M'Faydean's).; Practical Pathology, 1882—Arthur New.

*Silver Medal* for Distinguished attainments—William Hackett, Folkingham. Certificate of Distinction—William Kirk, Edinburgh. *Silver Medal* (given by Professor Walley for General Excellence in Veterinary Medicine and Surgery)—Henry Holroyd, Blackburn. Veterinary Medical Association Medals (*Silver*) for the best Essay of the Session—Murray Lornie, Errol, Perth ; for the best Communication of the Session—John Francis Mahony, Cork.

Highland Society's Class Medals (*Silver*)—Botany, 1880— Arthur New. Anatomy, 1881-82 ; Chemistry, 1880-81 ; Veterinary Medicine and Surgery ; Cattle Pathology, 1882-83—Kenneth James Urquhart, Newton-le-Willows. Botany, 1881— Harry M. Maxwell, Orton Waterville, Peterboro'. Materia Medica, 1881—David J. Barry, Limerick. Physiology, 1881-82 —Charles S. Smart, Musselburgh.

The *Lord Provost* afterwards congratulated the prize winners on the magnificent trophies of their labours. He also congratulated those who had not won prizes for the race they had run, pointing out at the same time that there were various circumstances which operated in prize-winning to the favour of one class of men and against another ; but it by no means followed that the race in life would be won by those who were first in the early battle. As an instance of this he referred to Sir Walter

Scott who was so frequently found at the bottom of the class. He counselled them all to work hard in theory and practice, and said that very good work had been done by former students of this College in Afghanistan, the Cape, and in Egypt. (Applause.) He was glad to learn as a proof of the harmony in which they had all been working that during the course of the session an address and a valuable ring were presented by the students to Professor M'Faydean. (Applause.) In conclusion he thanked the Highland Society for the kind interest it showed in the College.

*Bailie Hall* in moving a vote of thanks to Principal Walley and the other professors, said the trustees and the students were much indebted to them for the way in which they had kept up the prestige of this old institution. Many of them could look back to the time when Professor Dick sat in that chamber as a Town Councillor—a man of great shrewdness, determination, and force of character. He was a man of deeds, not of professions only. (Applause.) It happened that his venerable sister had been poorly of late, but whether she lived longer or not the name of Dick would go down to posterity and be esteemed by all men of veterinary science. (Applause.)

*Principal Walley* replied and moved a vote of thanks to the Lord Provost for presiding.

The proceedings then terminated.

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## NEW VETERINARY COLLEGE, EDINBURGH.

The prizes gained by students at the New Veterinary College, Edinburgh, were presented by Principal Williams in the College this afternoon. The Principal said that he never gave away the prizes with greater pleasure than this year. The classes, which numbered 154, an increase of eight on last year, had worked very hard indeed, and those who had obtained the prizes fully deserved them. He mentioned with pleasure, mixed with a degree of sorrow, that this was the last time that they would meet in the same place at the close of a winter session. Their new building, when ready, would be, he thought, sufficient for all the students who would present themselves for the next ten years. They would have one large class-room capable of containing 200 students, and another to hold 100. There would also be a large reading-room for students, a bone-room, a dissecting-room, and two laboratories, one for chemical and the other for physiological and pathological purposes. The latter would be fitted with conveniences for microscopic work, without a knowledge of which it was useless for any young veterinary surgeon to go into the world. To show the importance of microscopic investigation, he mentioned that a fortnight ago a violent and mysterious disease which had broken out on a farm near Stow was found by means

of the microscope to be caused by a minute organism, which, on investigation, was discovered to be derived from the water. The prize-winners were:—£20 presented by Principal Williams; and silver medal by the Edinburgh Veterinary Medical Society for first and second examinations, W. R. Davis, Isle of Man; silver medals for chemistry (last year), anatomy, materia medica (last year), and physiology, A. J. Haslam, Manchester; silver medal, for botany, William Lothian, Duns; silver medals for pathology of the horse and of cattle, Robert J. Hickes; silver medals for chemistry, J. A. Robinson and W. D. Connochie, Selkirk, equal.

On the motion of Dr. Stevenson Macadam, a vote of thanks was awarded to Principal Williams for the manner in which he conducts the College. This was all the business.

## Veterinary Jurisprudence.

### NON-DISINFECTION OF A CATTLE SHIP.

At the Mansion House Police Court, London, the Netherlands Steamship Company were recently summoned for that they, being the owners of a vessel called the Maastroom, used for carrying animals at sea, did not, after the landing of animals therefrom, and before taking on board any other cargo, properly cleanse and disinfect the ship in the manner prescribed by an Order in Council, contrary to the Contagious Diseases (Animals) Act. Mr. St. John Wontner, solicitor, conducted the prosecution; and Mr. Pritchard appeared for the defence. It appeared that Captain Curtis, one of the inspectors of the Veterinary Department of the Privy Council, paid a visit to the vessel, which had brought over 1173 sheep, 47 oxen, and 42 calves. The animals had been carried between decks. Fresh cargo was being taken on board, but Captain Curtis found that the requirements of the Order in Council as to disinfecting had not been fully complied with. Although this country and Ireland were fearfully infected with the foot-and-mouth disease, and the markets were bound to be closed in order to stop it, vessels were arriving with the disease. On Captain Curtis questioning the mate he said he had no copy of the regulation, and did not know the law. It was not to be wondered why the foot-and-mouth disease was so prevalent if the regulations as to the disinfection of vessels were not carried out. For the defence the captain and mate of the vessel were examined, and stated that they had scraped and swept the parts of the ship where the cattle had been carried, and had whitewashed the sides and sprinkled the decks with whitewash. The vessel had experienced very heavy weather in coming, and had arrived a day late, and they had not

had time to do anything else. Mr. Pritchard said the offence was that they had not washed the vessel where the cattle were carried, but the parts were scraped and brushed and the sides limewashed. They had neglected only one of the regulations, and in those circumstances it was not a case where the full penalty ought to be imposed. Sir Robert Carden said it was clear that all the regulations had not been complied with, and at this time it was most important that they should be carried out to the very letter of the law. It was no excuse to say that the vessel was delayed, and that there was not time to do it. He accordingly imposed a penalty of £20 and £3 3s. costs, half of the penalty to go to the Treasury.

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# Parliamentary Intelligence.

## CATTLE PLAGUE IN EGYPT.

HOUSE OF COMMONS, *March 30th.*

*Dr. Cameron* aaked the Secretary of State for War whether it was true that two outbreaks of cattle plague occurred among the oxen sent from India for the use of the troops in Egypt; whether in one of those outbreaks the affected animals, instead of being destroyed and buried, were simply driven forth to die, and whether the result was that the road to Kassassin, having been thus infected, cattle for the use of the troops were subsequently obliged to be sent up by train.

*Sir A. Hayter.*—Yes, sir, it is true that two outbreaks of cattle plague occurred among the Indian cattle. We have definite information as to the cattle first affected, thirty-six in number. Of these ten died, and twenty-six were destroyed and buried. We have no details as to the second outbreak among the Indian cattle, as to the numbers affected or as to their disposal. It is not the fact that the road to Kassassin ever became infected, and the cattle were sent through by rail to Cairo, not on that account, but to insure their arriving in good condition for issue to the troops. There was not a single case of rinderpest or cattle plague throughout the campaign among the cattle destined for the use of the English troops.

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## FOOT-AND-MOUTH DISEASE.

HOUSE OF LORDS, *April 16th.*

The *Duke of Richmond and Gordon* called attention to the prevalence of foot-and-mouth disease in the United Kingdom, and to the continued importation of that disease from abroad; and moved for any correspondence with foreign Governments on the subject. This was a subject, he remarked, which was attracting the attention of agriculturists throughout the United Kingdom, and their lordships were a body before whom, he thought, he might fitly bring it, notwithstanding the sneers of Mr. Chamberlain upon that assembly, to which he should not condescend

further to allude, because he felt certain that the opinions propounded by Mr. Chamberlain were not entertained by any other class in the country, nor indeed, he ventured to think, by any of his colleagues. (Hear, hear). The question was one which affected the consumers as well as the producers of meat. The strict administration of the Act of 1878 had been very successful in checking the spread of disease, so that in 1880 they enjoyed a practical immunity from foot-and-mouth disease, and there was the strongest evidence that its reappearance was due to the landing of diseased animals from abroad. On the 20th of September in that year a cargo of diseased animals was landed at Deptford Market from France, and soon afterwards the disease made its appearance in the City of London and some of the adjoining counties. It gradually spread throughout the country, and from that time up to the present hour the country had not been free from disease. (Hear, hear.) In 1880 there were thirty-eight counties affected, there were 1464 fresh outbreaks, and 32,378 animals were attacked. In 1881 there were forty-nine counties affected, 4833 outbreaks, and 183,046 animals were attacked; and in 1882 the same number of counties were affected, there were 1970 fresh outbreaks, and 37,950 animals were attacked. The disease affected both breeding and fattening stock. The number of diseased animals imported into this country was 150 in 1880; 592 in 1882; and in the first six weeks of the present year there were imported on an average ten diseased animals a day. He acknowledged that the present Government had energetically carried out the provisions of the Act of 1878, but still the disease went on, and therefore they must adopt some measure which had not hitherto been tried. If it was necessary to shut out cattle from France it was equally necessary to prevent disease coming from the United States. If agriculturists were to submit to regulations which interfered with their business they had a right to demand that proper efforts should be made to keep disease from coming into the country. There was much dissatisfaction among the agricultural classes at the utter failure of all the attempts of the Government to check this disease.

*Lord Vernon* expressed the opinion that the law was decidedly defective, and urged that at all events there should be more unity of action between the urban and rural authorities in their treatment of the disease.

The *Marquis of Hertford* said that the farmers were disposed to recognise that in the long run they would benefit much by attention to the regulations of the Privy Council, but not unless they were enforced with uniform strictness and unless the Government also endeavoured to restrict the importation of disease from America as well as from France.

*Lord Carlingford* recognised the grave importance of the question of cattle disease to the agricultural interest, and, in fact, to all interests in this country, but pointed out that the question of dealing with foot-and-mouth disease was a matter of far greater difficulty, requiring a greater and more constant exercise of discretion and conflicting responsibilities than the task of dealing with the more grave and fatal diseases of cattle. The noble duke in effect contended that the Act of 1878, as administered both by himself and his successors, had now been proved to be a failure so far as the exclusion of foreign disease was concerned. Well, that Act had not, they all knew, stamped out foot-and-mouth disease, and he did not know whether when it was passed it was expected that it would succeed to that extent, but the question they had now to consider was the extent of the national loss and evil caused by the existence of this disease. He

found that in 1881 the number of outbreaks of foot-and-mouth disease was 4800 odd, and the number of animals attacked 183,000; and in 1882 the outbreaks were 1900, and the animals attacked 37,000. These were much larger figures than they would wish to see, but if they wanted to understand the importance as a question of national evil they must first remember the proportion between the number of animals attacked with this disease and the total number of animals in this country, which amounted to a large number of millions. Then he should like their lordships to compare the numbers he had given with what would possibly have happened supposing they did not enjoy the protection of the Act of 1878. In 1871 the number of outbreaks amounted to 52,000, and of animals attacked 691,000. Then as to non-preventible losses from natural causes, they knew that the loss of sheep from fluke within the last two years in this country had been something enormous, being no less than 10 per cent. upon the whole stock of sheep in this country. The noble duke had hardly done justice to the effects of the Act of 1678. Under it they were almost within sight of the extinction of pleuro-pneumonia, and it had enormously reduced the prevalence of foot-and-mouth disease. But it was not to be denied that the evil still existed, and the question was what was the remedy. The noble duke, as he understood him, would recommend the practical prohibition of all foreign live animals coming into this country. They had to consider what would be the effect of the adoption of such a measure as that. The result would be a loss of about a million and a half head of cattle, valued at something like nine millions of money. Of course the noble duke implied that in order to cover any loss of that kind they should look to a growth in the dead-meat trade; but, in the opinion of all who understood the question best, the only chance of a creation of a dead-meat trade would be the total and permanent prohibition of the importation of live animals, and not merely any temporary prohibition made by Orders in Council under the provisions of the Act of 1878. But supposing that they adopted this policy and trusted to the dead-meat trade exlusively, should they be absolutely safe from foreign infection? No doubt the amount of security against such affection would be increased; but if they were to submit to such a sacrifice as he had indicated they should have a right to require more than that. There would be still be a hunded ways in which infection could be imported; and if the dead-meat trade were to spring up as the only compensation for the stoppage of the live-meat trade the dangers would be increased, for men might be engaged on one side of the Channel looking after cargoes one day and would come over to London on the next. Foot-and-mouth disease, he reminded the House, was first introduced to this country at a time when absolute prohibition prevailed. The cases of France and the United States were not similar, because in the United States very little foot-and-mouth disease prevailed. The Privy Council felt they would not be justified in using the powers entrusted to them to enforce a general prohibition of the importation of live animals. Such prohibition could only be undertaken by fresh legislation, which the Government were not prepared to initiate. A new order was under consideration by which, the moment a place was declared infected by an inspector, movement of animals would be restricted within a certain radius, without the delay that now elapsed before local authority could take measures with this view. The Government also hoped that much would be done by the greater rigour of local authorities, who, it was found, were in certain districts, notably in Scotland, able materially to reduce and almost extinguish the disease.

After remarks from *Lord Denman*, the *Duke of Richmond* briefly replied.

*Lord Carlingford* should be sorry to be misunderstood. He did not intend to treat this question on the loss to agriculturists as a trifling one. On the contrary, he endeavoured to treat it as a very serious matter, and his object was to arrive at some estimate of the total national loss and mischief for the purpose of comparing it with the alternative which lay before them in the exclusion of a very large amount of their food supply. (Hear, hear.)

The *Lord Chancellor* pointed out that to make a sweeping and universal order to exclude permanently from all countries, not founded upon particular reasons applicable at the time to each country, would be distinctly legislation, and not administration of the Act.

The motion was then agreed to.

## PRESENTATION OF TESTIMONIAL TO MR. FLEMING.

Veterinary Infirmary, Rochester,
*April* 20*th*, 1883.

Dear Sir,—Will you be good enough to insert in your next issue that the presentation of Testimonial to Mr. Fleming will take place at the annual meeting, and oblige

Yours truly,
J. B. Martin.

*To the Editors of the 'Veterinarian.'*

## SCIENCE DEGREE.

We have to announce that the Degree of Bachelor of Science in the department of Natural Science has been conferred on Mr. John M'Fadyean, M.B.

## SUBSCRIPTIONS ON BEHALF OF THE WIDOW AND FAMILY OF THE LATE MR. BROSNAN.

Royal Veterinary College,
*April* 19*th*, 1883.

Gentlemen,—Allow me to acknowledge through your columns the receipt of the following contributions on behalf of Mrs. Brosnan, and to thank the contributors for their kindness.

Painful and necessitous as is the case of Mrs. Brosnan, it is more than paralleled by that of the widow of an English veterinary surgeon who recently died in the County of Durham, leaving his wife and five children not only unprovided for, but in the poorhouse. I mention this case not with the direct object of soliciting contributions in aid of this lady and her

children—though I shall be very happy to receive such if any of my professional brethren wish to contribute to so good a cause as the assistance of the widow and the orphan—but rather for the purpose of urging upon every member of the body corporate the advisability, not to say the duty, of joining the Defence and Benevolent Society, as even though any individual member may never require assistance, he may be giving aid to others not so fortunate as himself. I am, yours truly,

THOMAS WALLEY.

*To the Editors of the 'Veterinarian.'*

*Subscriptions on behalf of Mrs. Brosnan,*

| | £ | s. | d. | | £ | s. | d. |
|---|---|---|---|---|---|---|---|
| R. Rutherford | 1 | 0 | 0 | G. Goodacre | 0 | 10 | 6 |
| H. Thompson | 0 | 10 | 0 | J. S. Humdall | 0 | 5 | 0 |
| — Constable | 0 | 5 | 0 | R. C. Edwards | 0 | 10 | 0 |
| Captain Hayes | 0 | 10 | 0 | J. Fraser | 1 | 1 | 0 |
| C. Cunningham | 0 | 10 | 0 | Mrs. A. | 1 | 0 | 0 |
| C. Philips | 0 | 10 | 0 | G. A. Oliver | 1 | 1 | 0 |
| Veterinary Staff and Students Royal Vet. College | 6 | 0 | 0 | J. R. Cox | 2 | 2 | 0 |
| A. J. Owles | 0 | 10 | 0 | T. Corby | 1 | 1 | 0 |
| H. W. Caton | 1 | 1 | 0 | T. Gregory | 2 | 2 | 0 |
| John Bell | 1 | 1 | 0 | J. Donald | 0 | 5 | 0 |
| W. Hack | 1 | 0 | 0 | — Campbell, Kirkcudbright | 0 | 10 | 0 |

## OBITUARY.

WE have received from the Registrar the following list of deaths reported during the past quarter, in addition to those which have been published monthly in our pages.

Henry Whitmore Baker, Messing, Essex. Diploma dated December 4th, 1838.

George Bodington, Blackwater, Hants. Diploma dated April 27th, 1846.

Thomas Brook, Chipping Ongar, Essex. Diploma dated December 19th, 1860.

Timothy Coleman, Blofield, Norfolk. Diploma dated December 3rd, 1837.

William Furnivall, Kingston-on-Thames. Diploma dated December 19th, 1855.

David King, Paisley. Diploma dated April 18th, 1870.

James Leggett, Lavenham, Suffolk. Diploma dated April 30th, 1862.

Daniel Crosbie Murphy, Cork. Diploma dated April 19th, 1877.

John Parker, Bakewell. Diploma dated April, 20th, 1869.

Peter Rackham, Lowestoft. Diploma dated May 23rd, 1850.

John Tatam, Leeds. Diploma dated May 23rd, 1855.

THE

# VETERINARIAN.

VOL. LVI. No. 666. MAY, 1883. Fourth Series, No. 342.

## Communications and Cases.

### ON PLANTS IN RELATION TO ANIMALS.

By Professor James Buckman, F.G.S., F.L.S., &c.

(*Continued from* p. 316.)

Our present paper will be devoted to an examination of the genus Sambucus, our native Elder, which belongs to the natural order Caprifoliaceæ, and may be described as follows:

Caprifoliaceæ.—Shrubs or trees, very rarely herbs, with opposite simple, entire, or toothed, or more rarely pinnate leaves, usually without stipules. Flowers regular or irregular, in terminal corymbose cymes or heads, more rarely axillary, white, yellow, pink, purple, or greenish. Calyx-tube adhering to the ovary; limb 5-, rarely 4-lobed or entire, sometimes nearly obsolete. Corolla monopetalous. Stamens adhering to the bottom of the corolla-tube, as many as its segments. Ovary inferior, 3-, rarely 5-celled. Fruit, a berry, generally pulpy.

The genus Sambucus—*Elder*.—Calyx limb obsolete or with 5 very minute teeth. Corolla subrotate, with a short urceolate tube and a broad spreading limb with 5 blunt lobes; stamens 5; stigmas 3, distinct. Fruit, a small juicy drupe, containing 3 small 1-seeded stones.

The derivation of the name is from σαμβυκη (*sambukè*), which in Latin has been changed to *Sambuca*, a musical instrument, which is believed to have been made of Elder wood.

Of this genus we have two native species:

1. *Sambucus nigra* . . The Common Elder.
2. „ *ebulus* . The Dwarf Elder.

1. The common Elder is so well known that it scarcely needs description. It is a small tree, very common to woods and hedge-rows, to which it seems to be taken by small birds, which, eating the berries, void the seeds. In hedges it is often a very pernicious weed, as its quick growth and large leaves cause the right hedge-quicks to be overpowered. It is, however, not unfrequently used as a hedge plant, especially near dwellings, as it grows up quickly, and by yielding flowers and berries, both of which at one time were in great request.

Dr. Syme recognises the three following varieties, which it will be seen are named from the forms of the leaflets. Thus :

Var. *α, genuina.*

Leaflets 5 to 7, oval, elliptical, or lanceolate, simply serrate.

Var. *β, laciniata.*

Leaflets 5 to 7, lanceolate, cut.

Var. *γ, rotundifolia.*

Leaflets 3, orbicular, simply serrate. Of these the two latter are uncommon, but the first form is met with everywhere in England and Ireland, though Dr. Bentham says it is "only introduced into Scotland." It is, indeed, just possible that this tree was at some remote period introduced to our island from the Continent, and, if so, its spread may easily be accounted for from the medicinal repute that has ever clung to it.

Mrs. Lankester gossips about the Elder as follows :

"The common Elder is a small tree, familiar to everyone from its frequent occurrence in hedges and about cottages and farm-houses. Its ample cymes of delicate cream-coloured flowers make a fine show in June, and its purplish-black clusters of berries in September. Sir J. E. Smith says that our uncertain summer is fully established by the time the Elder is in full flower, and entirely gone when its berries are ripe. The berries of the Elder are much valued in country districts, where a kind of wine is made from them, which is highly esteemed as a winter cordial drink ; they are also boiled down with sugar into a sort of rob, which has a rustic reputation for colds and sore throats. In olden times there was no plant that had a greater medical reputation than the Elder. The inner bark was employed by the village doctor as a cathartic, and the flowers as a fomentation or made into ointment. Boerhaave is said to have held the tree in such estimation that he never passed one without taking off his hat in its honour.

"An oil, obtained by distilling the flowers, is still retained in some pharmacopœias, and another, called *green oil,* is prepared

by boiling the leaves in rape oil, and is sometimes used as a liniment.

"The flowers, distilled with water and alcohol, yield a perfumed liquid known as elder-flower water, and is in requisition for the toilet, and in confectionery. Loudon tells us that the ancients used the fruit of the Elder, in common with that of the mulberry, to stain the statue of Jupiter red on the celebration of the fête of that god. They also employed the berries to dye the hair of their head black. The wood of the Elder, when it becomes old, is very hard and close-grained, and susceptible of a high polish; but the interior of the stem is filled with pith. The shoots are applied to various purposes on account of this circumstance, the pith being easily removed, leaving a hollow tube. From time immemorial children have made pop-guns, whistles, and miniature muskets of the Elder branches, Pliny himself taking notice of the fact. This pith, being exceedingly light, is cut into balls, which are used for delicate toys and electrical experiments. If a twig of the Elder be partially cut, then cautiously broken, and the divided portions carefully drawn asunder, the spiral vessels will be very apparent and their structure easily studied. In Kent there are fields or orchards entirely of Elder trees, which are cultivated for the sake of their fruit, which is brought regularly to market, and sold for the purpose of making wine. The price is from 4s. to 6s. a bushel. These berries are said not only to be used for legitimately making British wine, but to a great extent in the adulteration of foreign wines, especially port; and we heard of the confession of an innkeeper in a university town, who revealed, on his retirement from business, that Elder wine, judiciously flavoured with vinegar, sugar, and small quantities of port, constituted his famous clarets and Bordeaux, so much admired and so highly paid for by the Undergraduates. There was formerly a notion among gardeners that the scent of the Elder was distasteful to insects, which led to the planting of large numbers of trees around the market-gardens about London; but this notion seems unfounded, for moths, at least, are particularly fond of the flowers, a fact well known to entomologists."

The mention of the word *Rob*, as applied to one of the preparations of Elder, reminds us that in Thornton's 'New Family Herbal,' published some ninety years since, we have the following formula for its preparation:

Inspissated Juice of Elder Berries, commonly called Elder Rob (Succus Spissatus Sambuci, vulgo Rob Sambuci, E.).

Take of juice of ripe Elder berries five pounds, double refined sugar one pound. Evaporate with a gentle heat to the consistence of pretty thick honey.

These inspissated juices contain the virtues of the respective vegetables in a very concentrated state. Those of the Elder, black current, and lemon are acidulous, cooling, and laxative, and may be used in considerable quantities."*

Forms are also given for Elder ointment, Elder wine, and Elder-flower wine, the latter of which is called English Frontiniac. We should fancy that the Elder rob would be a convenient way of using a not bad remedy (much used in rustic practice) for colds, and, besides, in this form it is a gentle laxative.

The authority from which we have just quoted has the following remarks:

"Medical Use.

"An infusion of the inner green bark of the trunk in wine, or the expressed juice of the berries in the dose of half an ounce or an ounce, is said to purge moderately, and in small doses to prove an efficacious deobstruent, capable of promoting all the fluid secretions. The expressed juice, inspissated to the consistence of a rob, proves a useful aperient medicine, promotes the natural evacuations, and, if continued for a sufficient length of time, does considerable service in various chronical disorders.

"The young leaf-buds are strongly purgative, and act with so much violence as to be deservedly accounted unsafe. The flowers are very different in quality; these have an agreeable aromatic flavour, which they yield in distillation to water, and impart by infusion to vinous and spirituous liquors."†

But at the present day it must be confessed that the Elder has not the reputation as a medicine that it once had, though here and there, in the country mansion and in the farm-house, preparations both of Elder flowers and Elder berries are still to be met with. Elder-flower water has a great reputation as a cure for sore eyes, and is even extolled as a cosmetic, while at the present day no better remedy for a newly-taken cold is to be found than Elder-berry wine, unless it be that of some old mulled port, which there is reason to believe is often made from the *Elder* tree.

But though the Elder tree has lost some of its reputation with the medical practitioner, it still preserves a hold upon the superstitious reverence of the country people, especially in Gloucestershire, of which the following is an example:

Mr. Jones, in his notes on certain superstitions in the Vale of Gloucester, cites the following, which, by the way, is no unusual case:

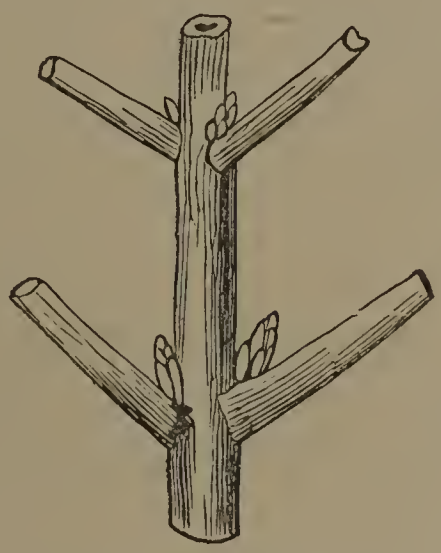
"Some men were employed in removing an old hedgerow,

* Page 324.

† Ibid., p. 324.

partially formed of Elder trees. They had bound up all the other wood into faggots for burning, but had set apart the Elder, and inquired of their master how it was to be disposed of. Upon his saying that he should of course burn it with the rest, and ordering it to be faggoted, one of the men said, with an undisguised alarm, that he never heard of such a thing as burning Ellan wood; and, in fact, so strongly did he feel upon the subject, that he refused to participate in the act of tying it up. The word Ellan (still common with us) indicates the origin of the superstition. In low Saxon the *Sambucus nigra* is called Ellhorn. Arukiel unsuspectingly relates, 'Our forefathers also held the Ellhorn holy, wherefore whoever need to hew it down (or cut its branches) has first to make this request: "Lady Ellhorn, give me some of thy wood, and I will give thee some of mine when it grows in the forest," the which, with partly bended knees, bare head, and folded arms, was ordinarily done, as I myself have often seen and heard in my younger days.'

"There exists many superstitions respecting Elder wands, Elder trees before stables, the shedding of water under them, and the Elder mother, a Danish superstition. The attributed curative effects of Elder are well known. Its flowers are an agreeable cosmetic, and its bark and leaves are used for various purposes, but the most curious use is that which has been recorded by Mr. Jones, on the authority of Lord Ducie—a small piece cut from a young shoot just above and below a joint, so as to leave the bud projecting at each end of it, after the fashion of



A charm for Rheumatism.

a rude cross, borne constantly about the person, is a most certain and effectual cure for rheumatism. It appears, however, that the Elder, to be thus efficient, must grow in consecrated ground. In Tortworth churchyard (and others in the County of Gloucester) is such a tree, and we are told that application is fre-

quently made for bits of it from a considerable distance, and that some of its recipients are not only willing but able to give it a good character of many years' standing."

We have appended a drawing of this charm of the true orthodox form.*

2. *The Dwarf Elder* has purple flowers, but the berries are so much like those of the common as to be frequently used for the same purposes. In accounting for its English name of Dane-wort Sir J. E. Smith says: "Our ancestors evinced a just hatred of their brutal enemies the Danes in supposing the nauseous, fetid, and noxious plant before us to have sprung from their blood;" but we have no doubt that both species of Elder were held in superstitious reverence; but as the dwarf Elder, though a smaller plant, was much more active than the common Elder, there is no doubt it was planted about old houses and conventual dwellings.

## Pathological Contributions.

### CATTLE PLAGUE.

This disease still is very prevalent in the Russian-Polish provinces bordering on Austria and Germany, and in those adjoining the Black and Baltic Seas; in consequence Posen and the West Prussian Governments, which had previously prohibited the importation and transit of live cattle from Russia, have now extended that prohibition to all other ruminating animals, as well as to their products, such as raw wool, hair, bristles, &c.

### PLEURO-PNEUMONIA.

In the Netherlands during the four weeks ending the 21st April one case of this disease occurred in South Holland, and in Spæling district twelve animals on *post-mortem* examination were found to have been affected.

In Great Britain during the four weeks ending April 28th, 1883, there were twenty-four outbreaks of this disease reported and seventy animals attacked. In the corresponding period of 1882 the outbreaks reported were forty-five and the animals attacked 109.

* The charm should be worn in the waistcoat pocket.

## FOOT-AND-MOUTH DISEASE.

During the four weeks ending April 28th, 1883, there were 437 outbreaks of this disease reported in Great Britain and 17,814 animals were attacked. In the corresponding period of 1882 the outbreaks reported were 144 and the animals attacked 2315.

## SWINE FEVER.

During the four weeks ending April 28th, 1883, there were 126 outbreaks of this disease reported in Great Britain; 597 swine were attacked, of which 115 died. In the corresponding period of 1882 the outbreaks reported were 167, the animals attacked 889, of which 182 died.

## Facts and Observations.

New Method of Testing for Sugar in the Urine.—Dr. George Oliver, of Harrogate, read a communication at the Clinical Society of London, Friday, May 11th, on a new method of detecting sugar in the urine. The principle of the test consists in the fact that by boiling saccharine urine with a solution of sulphindigotate of sodium, which has a blue colour, a gradual succession of colour-changes, passing in order from blue across the colours of the spectrum finally to yellow, takes place. The tests can be carried about in the form of blue papers saturated with the indigo solution. The papers yield a clear blue solution with distilled or fairly pure water. Indigo blue in the presence of glucose becomes a colourless fluid: this was the circumstance which led Dr. Oliver to examine diabetic urine in this regard. The President asked whether the constituents of bile produced the colour-changes, to which Dr. Oliver gave an answer in the negative.—*Medical Times and Gazette.*

The Vaccination Laws.—It is stated that the Government have no intention of encouraging attempts to deal with these laws; but the President of the Local Government Board, in pursuance of the policy followed by Mr. Dodson, will continue to discourage the infliction of cumulative penalties under the Act.—*Ibid.*

Painless Slaughtering.—The Markets Committee of the London Corporation are considering the application of the London Model Abattoir Company for a site in the Islington Cattle Market, whereon to erect a model slaughter-house on improved principles.—*Ibid.*

# THE VETERINARIAN, JUNE, 1, 1883.

Ne quid falsi dicere audeat, ne quid veri non audeat.—CICERO.

## MEAT INSPECTION.

OUR neighbours across the Channel continue to take a deep interest in the question of the proper limits to be assigned to the action of the official whose duty it is to condemn the carcases of animals which are found to be diseased after being slaughtered for food purposes. The chief subject of discussion at the meetings of the Central Veterinary Society of France has been for some time past the regulations which should guide the inspector in the seizure of meat of animals affected with tubercle. Cases have been quoted in which tubercle has been found in the muscles, the respiratory organs, the pleura, the diaphragm, the abdominal viscera, and the peritoneum; and it was not unreasonably contended that the carcase of an animal so diseased should not be allowed to come into consumption.

Some scandal appears to have been caused by the repeated seizure of carcases of tuberculous cattle in the butcheries of Dijon, and the mayor appealed to Professor Bouley, who without hesitation concurred in the decision of the inspector. M. Bouley argued against the views expressed by M. Reynal, whose work on 'Sanitary Police' he contends is out of date, and adduced, in support of his own opinion, the experiments of M. Toussaint, Professor in the Veterinary School at Toulouse, who proved that tuberculosis can be communicated to the pig, not only by the ingestion of meat of tuberculous subjects, but also by inoculation with the expressed juice of such meat. Under these circumstances M. Bouley remarks it would be culpable to neglect the teaching of experimental science.

In regard to the ready communicability of such an infectious malady to the pig tribe, which presents such analogies in its organisation to our own. M. Villair, Chief of the Inspection Service of the Paris abattoirs, replied that it was not justifiable to condemn the meat of phthisical animals unless it was of poor

quality. When the meat was of good appearance and quality it would be sufficient to seize the organs and tissues infiltrated with tuberculous matter, and allow the rest to come into consumption.

In reply to a second inquiry from the mayor of Dijon, who pointed out that these adverse opinions placed him in a difficult position, M. Villair declared that he did not believe that the inspectors of butcheries could defend the seizure of meat of apparently good quality mainly on the ground that it came from a tuberculous animal. In any case he asserted such seizure in the Paris abattoirs would lead to such strong protests from the butchers that it would be impossible to maintain the system.

Finally, the whole question has been referred to the French Sanitary Commission.

In the discussion which followed the introduction of the question to the notice of the Central Veterinary Society of France, M. Cagny inquired what constitutes true tubercle, and proceeded to refer to several morbid states, which he alleged may be confounded with that deposit.

Other speakers contended that tuberculous flesh was harmless as food, in consequence of the process of cooking destroying the vitality of the infection germs. This statement of opinion was met by reference to cases in which whole families had become phthisical from the consumption of tuberculous meat, a proposition which in its turn elicited the retort that such instances were rare, and could only be quoted as coincidences; at the conclusion of the debate no advance was made towards a solution of the problem.

One important fact, which we in this country generally ignore, was brought out in the course of the discussion, viz. that the detection of tubercle in food animals is only possible under a system of inspection which is necessarily associated with compulsory slaughter in public abattoirs. So long as slaughter in private slaughter-houses is permitted inspection of carcases of slaughtered animals is quite beyond the line which separates the practical from the impossible.

## Extracts from British and Foreign Journals.

### LATENT GLANDERS IN THE HORSE, ILLUSTRATED BY THREE CASES.

By G. W. Bowler, M.D.V.S.

The following cases of glanders will serve to show the length of time the disease may be dormant in the system without giving much outward sign of its presence, and how particular the veterinarian requires to be on making an examination of horses supposed to be affected with glanders or chronic gleet. The first of the cases I have undertaken to report for your journal was that of a bay gelding, aged, a very fast pacer, owned by a livery-stable keeper in Newport, Kentucky. From such information as I could derive in reference to the case it appears that the horse in question had been sick for some months past, and, as the owner informed me, had been treated for some imaginary disease of the kidneys, but instead of improving under the treatment had become much worse.

At the time I was called upon to see the horse the owner stated that he wished me to make an examination in order to discover the true character of the disease with which he was affected; consequently I gave him a very careful examination.

I found the animal in very poor condition, being low in flesh, an unhealthy appearance of the hair, legs slightly swollen, slight muco-purulent discharge from left nostril, some enlargement of left submaxillary gland, which was partly attached to submaxillary bone; whilst the Schneiderian membrane displayed several ugly chancrous ulcers. After this examination I did not hesitate in pronouncing it a case of chronic glanders, and ordered the animal to be destroyed, which the owner promised to have done.

I left the stable, and scarcely even gave the case a second thought until about twelve months had elapsed, when being called upon to see a patient in Covington, Kentucky, my attention was called to a bay gelding being led to halter, and which had the appearance of a fine, healthy animal. The owner addressed me as follows:—"Hello, doctor! Do you know this horse?" I answered, "No." "Well," said he, "this is the pacing horse, Sam, you pronounced glandered about a year ago." "Indeed," said I, "is that so?" "Yes,"

said he. "You were slightly mistaken that time, wer'nt you?" I went up to the horse and again examined him, and found it was the same horse I had been called to see a year previous. I answered, "No, I was not mistaken. This horse was glandered when I examined him a year ago, and he is a glandered horse to-day." On making this reply he set up a loud laugh at my supposed ignorance, and I left for home, wondering at the strangeness of the case.

About two months after this conversation had taken place I was informed by a gentlemen, who was present at the time I speak of, that he would like me to come at once and see the horse in question, as the owner was about to have him destroyed. I at once repaired to the stable in which I had before seen him. And what a change had taken place in that short time. Instead of the sleek-haired, fine-looking horse he before appeared to be, I now found him poor in flesh, with the old discharge from the nostril, the Schneiderian membrane thickened and ulcerated, the body in most parts filled with farcy buds, many of which were discharging, and which gave the animal a most loathsome appearance. I asked the owner if he was now satisfied that my diagnosis was a correct one? He said that he was now well satisfied that such was the case, but that he never would have believed it had he not seen it. The animal was now taken to the commons and shot. Thus we find that in this case the animal had made an apparent recovery, but that the disease had lain dormant in the system for about fourteen months before it again broke forth in its most malignant form.

The next case I shall record was that of a chestnut colt rising five years old, the property of a well-known gentleman in this city, the owner of the celebrated three-mile mare, "Black Maria."

This colt was a very promising trotter, his owner having refused $1000 for him as a three-year-old, and at the time he was first supposed to be affected with glanders was about a month after he had recovered from a severe attack of typhoid pneumonia. I was then called in to see him again on account of a slight swelling of the left submaxillary gland, supposed to be the result of a cold, but, as the proprietor of the stable had that morning noticed a drop or two of blood issuing from the nostril, he thought it might be more serious than he had supposed. On examination I found the left submaxillary gland considerably tumefied, slight discharge from the nostril, and on the membrane I detected two ulcers, while on the back was a farcy bud, and one on the neck. I

at once pronounced it a case of glanders, and so informed the owner; but instead of having the colt destroyed he insisted on my treating him by way of experiment, to which I at last consented. A stable for the purpose was obtained, and the colt placed in it, so that he was entirely isolated from any other stock. I kept him under treatment for six weeks, by which time the ulcers had healed, the discharge ceased, and further than the appearance of the cicatrix where the ulcers had been nothing appeared to be the matter with the colt. I now turned him over to the owner, but cautioned him that the disease was at any time liable to break out again; he therefore concluded to give him a run on grass where he could do no harm. Just at this time a dealer came along, having a black pacing horse he was desirous of selling, and on seeing the colt, which he felt certain had been suffering from an attack of distemper only, offered to trade. An exchange was accordingly made, the owner giving colt, harness, blankets, halters, and everything he had previously worn, for the black pacer, and the dealer taking all further responsibilities. In three weeks from this time the chestnut colt was offered for sale at the public stables. He appeared to be in splendid health, and as the auctioneer stated his pedigree, &c., he also, in a sarcastic tone, informed the audience that I had some time ago pronounced him glandered, but that he was no more glandered than he himself. Instead, however, of its having the effect he expected, it had an entirely different result—as not a single offer was made for him, and he was returned to the stable. On the following day a gentleman who makes some pretensions to veterinary science and trading in horses purchased him for $150, and a few days afterward drove him up to my office in a light trotting waggon. He then asked me if it was true that I had pronounced the colt glandered? I told him it was. When he remarked, "Well, I cannot see anything the matter with him." I responded, "Perhaps not, but I can." This ended our interview.

In about a month afterwards the gentleman sold the colt to a prominent dealer in this city, who kept him for eight months, when one day his first owner happened to pass through the stable, and, recognising him, censured his present owner for keeping the colt amongst the other horses after what had been said. To this the gentleman replied that he didn't want any advice on the subject, as he knew very well that there never had been any glanders about the colt. A few more words passed between them, and nothing further was said until two months afterwards, when the disease again made its appear-

ance in a most loathsome form, compelling the present owner to return him to his previous one, who had the satisfaction of seeing him destroyed after passing through the hands of three dealers, each of whom considered himself an expert in detecting such diseases.

The third, and very important case, was that of the celebrated trotting mare Proteine, whose record almost approached that queen of the turf, "Maud S." She was owned in Cincinnati, and well known in sporting circles.

This valuable mare was first noticed to be wrong about the beginning of September, 1880. She was then stabled at Chester Park, and commenced to discharge from the left nostril, but it was generally supposed to be a slight cold, as she had for some time been off her feed. I was called to see her about the 8th of September, when I found her discharging freely from the left nostril; the discharged matter was of a mixed colour and very sticky, as it had adhered all the way round the nasal passage, which at once excited my suspicions of the case. On proceeding with my examination I discovered two or three chancrous ulcers on the Schneiderian membrane; the left submaxillary gland was considerably tumefied, but not attached to the submaxillary bone, and the general appearance of the mare was not that of an animal in good condition. I informed the owners of my suspicions that the mare was glandered, but it was agreed that I make another examination in the course of a week.

When I next examined her I proposed to have the mare locked up during the night, so that no one could go near her, and that I might see her before her nostrils had been cleansed, which was done.

On this examination I found the discharge from the left nostril much as I found it before, with the exception that it was streaked with blood, and the ulceration had considerably increased and descended. There was no swelling of the legs or farcy buds on the body. But I was satisfied the mare was glandered, and she was removed during the night and taken to Kentucky.

On account of the celebrity and value of the mare, I proposd to the owners that we demonstrate to their entire satisfaction, by inoculation, that the mare was glandered. This was agreed to by both parties, and I accordingly made the necessary preparations, one of which was the purchase of a horse to carry out the test.

Just as these arrangements had been completed one of the owners of the mare refused to have the operation performed,

as a stable keeper (one of those men to be found in every community, who is always ready to cure everything that is incurable) made his appearance and assured the owner that he would cure the mare for a stipulated sum. He now took charge of her and commenced the usual treatment of injecting the nostrils, &c., and at the same time she was allowed to run in a paddock adjoining a pasture in which was another horse owned by a lady in this city. This state of affairs continued for some months, and the mare was pronounced *nearly* cured, when all at once the horse in the adjoining pasture commenced swelling in the legs, and a veterinarian being called in he pronounced the animal suffering from farcy and glanders, and the horse was killed by his orders. The owners of the mare now informed me they were agreed to have the inoculation test, and I was again preparing for it, when the same owner upset the business by listening to a number of illiterate persons. I therefore concluded to have nothing further to do with the mare, but to let matters take their own course. A year had now elapsed since I first saw the mare, when I was informed that she was entirely well, and was going into training at once.

She was accordingly brought over to Cincinnati from Kentucky, and all the prominent horsemen, together with two veterinarians (one of whom never ceases informing the public that he is an M.R.C.V.S.L., and hangs his diploma in the office of a livery stable in every city or town he visits), were invited to be present. About fifty persons examined the mare and pronounced her all right, as she looked tolerably well, was fleshier than usual, and had altogether ceased discharging from the nostril.

The veterinarians (?) stated that she had suffered from nasal gleet, but was entirely well. In consequence of this exhibition, a paragraph appeared in the next morning's paper, stating what had occurred, also remarking that a certain veterinarian (of course referring to me) had pronounced her glandered, but that such was not the case, as the worthies I have before made mention of had entirely cured her, and that the mare now bids fair to be the competitor of Maud S.

On the following day Mr. Wolfstain, one of the owners, and the gentleman who had always placed confidence in my diagnosis of the case, met me in the street, and wished to know my opinion of the mare since the appearance of the paragraph in the daily paper. I stated to him that, notwithstanding all that had been said and printed, I had not up to the present time had the slightest occasion to change

my opinion of the case. Mr. W. then went to see his partner, and disposed of his interest in the mare for $1000.

She was now placed in the hands of a trainer at Piqua, Ohio, who commenced driving her, but found she had no endurance. She was then taken out of his hands, and it was decided to make a brood mare of her. She was accordingly sent to the Alexander Stud Farm, Kentucky, and there put to one of the stallions. She was also to remain at this place until she foaled. However, a few weeks only had elapsed before the owner received a despatch from the farm to remove the mare from there at once, and she was consequently returned home the next or same day. It was now concluded to drive her on the road, which was done for a long time until she was WELL. It must be remembered, however, that for some time back the old discharge had made its appearance again.

Mr. Bair, the driver of Maud S, now concluded to take the mare, and place her in the stall previously occupied by Maud S, and it was given out that he was going to beat the time of the celebrated Maud S with this mare. *She is the great comet of the future,* &c.

After Mr. Bair had been driving the mare for some time he concluded to give her up, finding that she had neither speed nor endurance. From this time forth she gradually declined. The nasal discharge was ever present, also the enlarged submaxillary gland, and in the glutinous discharge small particles of tuberculous matter could readily be distinguished. This state of affairs continued until the mare had been suffering for nearly two years, when she was found to be dying from obstruction of the air-passages, and it was at last decided to destroy her. Another convincing proof of her condition ought to have been sufficient for even those who would not allow themselves to believe the mare was glandered, when it was known that a Hambletonian colt owned by the groom having charge of the mare, and who had always kept him with her to show that she was all right, eventually became affected in like manner with her, and died from a most loathsome attack of glanders; so much so that it was considered necessary to burn down the stable in which he had been confined, in order to get rid of the disease.—*New York Journal of Comparative Medicine and Surgery.*

## TUBERCULOSIS IN RELATION TO VACCINATION.

Dr. Warlomont (*Presse Méd. Belge*, April 1), after giving a succinct account of the results of Koch's researches, observes that the bacilli of tubercle may be transmitted either by the inoculation of the tubercle itself or of blood of a tuberculous subject; and that it would be puerile to disregard the importance of these conclusions in relation to vaccination, whether with human or animal virus. Fortunately we have not so much to regard the matter theoretically as experimentally. And a fact of immense importance has been acquired by experience, which is the impossibility of inoculating tuberculosis by mere *superficial* insertion of the bacillus, for if an animal is to be rendered tuberculous the bacillus must be carried deep into the tissues; and this is why infection is never produced at autopsies of tuberculous subjects; and no instance has been known of the conveyance of tubercle by vaccination. The disease when inoculated in experiment spreads slowly and gradually from the point of insertion. Among the millions who have been vaccinated during more than eighty years, not a single one has presented at the point of vaccination any resemblance of tubercle. And even supposing the possibility of conveying tuberculosis by the injection of blood be confirmed, all danger may be avoided by taking care not to inject blood with the virus.—*Medical Times and Gazette.*

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## VACCINE LYMPH FROM THE CALF.

It is reported that there has been a fear, for some time past, that the calves which are used at the Animal Vaccine Lymph Station in Lamb's Conduit Street, for vaccination purposes, might be infected with foot-and-mouth disease. The notice of the Privy Council has been called to the matter, and arrangements have been sanctioned, by which a kind of quarantine will be established so as to prevent the contagion being conveyed to the calves. Extensive structural alterations are being made on the premises to prevent the spread of the disease should any case of infection occur, and the authorities are believed to entertain strong hopes of being able to keep the station free from the epidemic.—*Medical Times and Gazette.*

## "KOCH *V.* PASTEUR.

THE following comments on the modern theory of preventing the spread of certain contagious diseases are extracted from the pages of the *Medical Times and Gazette.* They formed the subject of an important LEADER.

"Our readers may remember that at the late International Congress of Hygiene, at Geneva, M. Pasteur made a violent attack on Dr. Koch for having questioned the conclusions at which he had arrived on the subject of preventive inoculation, and an exciting debate was expected, when the German excused himself from replying on the ground of his imperfect command of the French language, and his opponent's total ignorance of any but his own. Dr. Koch, however, promised to publish his answer in the course of a few months, and he has now made his promise good. The different spirit in which the rival investigators approach the question is highly characteristic of their respective nationalities, and the discrepancies between their conclusions are owing to their different methods of procedure; besides which, it must be borne in mind that Pasteur is a chemist, and has not enjoyed the physiological and pathological training of his opponent. Pasteur assumes that all communicable diseases are parasitic. The presence of any bacterium in the body of an animal affected with such a disease is, to his mind, sufficient to identify the micro-organism with the disease. He employs fluid media for cultivation, ignoring the objections urged against them by Koch and his school, and he looks on all animals as equally fitted for experimentation, neglecting to avail himself of the differential tests that a variety of species affords. Thus, using the saliva of a dead dog for the inoculation of rabbits, he described a new form of rabies, having failed to find bacteria in the secretions of rabid dogs while alive; whereas there is every reason to believe that his rabbits died of ordinary septicæmia. He fell into a like error when he announced his discovery of the bacillus of canine typhoid in the nasal mucus, not the intestinal glands, of horses after death. Even as regards splenic fever, Dr. Koch disputes Pasteur's claim to priority of discovery, since his own first publication appeared in 1876, and Pasteur's not till the following year. Koch does not, as some imagine, deny the possibility of the transformation of bacilli under altered surroundings into allied forms, nor the change of pathogenic organs into innocent ones, but he insists on far more crucial and exact evidence of such change before it can

be accepted as an established scientific fact, much less a law of nature. He demands that in every case we must show the parasitic nature of the disease, that the micro-organism when found shall be cultivated in solid media until all chance of accidental admixture or access of other germs is excluded, and that the disease shall be reproduced by the inoculation of the pure bacillus with spores. That such demands can be realised is proved already in the case of erysipelas, of anthrax or splenic fever, and more recently of tubercle. The Imperial Board of Health of Germany instituted a series of experiments, under the direction of Dr. Koch, to test the validity of Pasteur's assertions respecting the immunity conferred by his inoculations with mitigated virus, and his theory as to the natural mode of infection. The results of these experiments are now for the first time made public. Pasteur, as is well known, asserts that by cultivating the bacillus in meat broth at a temperature of 42° or 43° C., and freely exposed to the air, its virulence is steadily lessened. To minimise the danger, he advises two successive inoculations—the first with a very feeble virus, the second with one of greater activity. These directions were strictly followed out, the animals operated on being sheep. Injections of the *premier vaccin* produced little or no constitutional disturbance, but a considerable number of the animals operated on died after inoculation with the *deuxième vaccin*. If the survivors had been now absolutely protected, something would have been gained, but such was not the case either against artificial or natural modes of infection; for of six sheep, which, having already received the *premier* and *deuxième vaccin*, ought to have enjoyed immunity, one died within two days of inoculation with unmitigated virus taken from a case of spontaneous splenic fever. Pasteur has advanced a theory that when the carcases of animals that have died from any form of anthracosis or have been slaughtered are buried, the bacilli are apt to be brought to the surface by worms along with their casts; and that the bacilli gain access to the circulation of previously healthy cattle through the abrasions of the oral mucous membrane caused by prickly or coarse fodder. This Koch disputes, urging that it is only in the spore-bearing stage that the microphyte is infectious, and that then mere ingestion is sufficient, breaches of surface being quite unnecessary. Soft food containing bacilli—in fact, potatoes hollowed out and stuffed with infective matter—were carefully introduced into the throats of the animals. When the matter consisted of bacilli alone, entirely free from spores, no ill effects followed; but on the experiment

being repeated with spore-bearing bacilli, whether fresh or such as had been dried for over a year, death invariably followed within two days. To test the protection afforded by the so-called preventive inoculation against natural infection, seven sheep, which had survived or resisted inoculation with pure unmitigated virus, and thus had been thrice 'vaccinated,' were fed with sporiferous matter in potatoes: two of the seven died of splenic fever on the second day. Dr. Koch therefore asserts that, even as regards sheep and cattle, the immunity is by no means certain, while none whatever is imparted to rabbits, guinea-pigs, rats, and mice, and man himself may suffer repeatedly from anthracosis. No protection against subsequent infection is afforded by inoculation with the bacilli of erysipelas or relapsing fever, even after the most prolonged cultivation. So that Pasteur has utterly failed on the scanty basis of his partial successes in the case of two diseases—the so-called fowl-cholera and anthracosis—to establish any law of immunity; still less has he made any progress towards realising his dream of extending its application to the prevention of every infectious disease to which man or beast is heir. His operations are more akin to small-pox inoculation than to vaccination. They involve the same danger of keeping up the disease by infection of others without conferring equal security on the individuals subjected to it. In short, Dr. Koch maintains that, considering the proved uncertainty of such immunity as is imparted, its probably short duration, and the danger to life not only in the case of the animals operated on, but to others, and to the men in contact with them, Pasteur's preventive inoculation cannot, at any rate at present, be deemed of practical and economical value."

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## THE PROTECTION OF LIVE STOCK FROM FOREIGN INFECTION (Official Report).

Professor Brown, of the Veterinary Department of the Privy Council, in his official report on the year 1882, refers to the demands made for the resort to more stringent measures for the protection of our flocks and herds from foreign infection. The report is extremely valuable, and is worthy of attentive study:

Among the questions which have been urged upon the attention of the Veterinary Department of the Privy Council during the past year that of the best means to be adopted to prevent the introduction and spreading of

foreign diseases of animals has occupied a prominent position.

Stock-owners in the present day do not hesitate to admit the efficiency of sanitary regulations in controlling the spreading of animal plagues; but while they allow that the Orders of the Privy Council have proved effective in dealing with diseases of animals at home, they insist, and latterly with increased emphasis, that they have failed to prevent the introduction of disease from abroad, and they ask that further measures shall be taken to protect the live stock of this country from foreign infection.

It is evident, from the tone of the memorials and resolutions which have been forwarded to the Veterinary Department by various agricultural societies, that foot-and-mouth disease is the particular malady against the introduction of which further security is sought.

Protection against cattle plague is already secured by the prohibition of the importation of cattle from countries in which the disease has a constant existence, or into which it is likely to be introduced from time to time; and foot-and-mouth disease is the only other affection which it is alleged cannot be effectually intercepted by the slaughter of diseased animals at the place of landing on account of the facility with which it is transmitted by means of mediate contagion, that is, by the agency of persons or substances which have been in contact with diseased animals.

Some of the memorials, after referring in general terms to the desirability of further steps being taken to prevent the introduction of disease, proceed further to consider the details of the plan which, in the opinion of the memorialists should be adopted. The propositions which have been submitted may be classed under three heads:

First, it is proposed to prohibit the landing of animals from countries where foot-and-mouth disease exists.

Secondly, prohibition is advocated in respect of countries which are not free from disease (including all diseases within the terms of the Act of 1878).

And, thirdly, there is the more sweeping proposition to exclude animals from all countries permanently, and substitute a dead meat for a live meat trade.

### *Prohibition of Animals from Countries where Foot-and-Mouth Disease exists.*

Taking each proposition in order, it may be admitted that the first one is within the powers of the Privy Council under the provisions of section 35 of the Act of 1878. In fact, the

power has already been exercised in regard to "specified" parts of France, Spain, and Portugal, and could be further exercised from time to time in respect of any specified foreign country from which animals affected with foot-and-mouth disease were shipped to this country; but the prohibition could hardly be continued when the exporting country became free from the disease, and the measure, even for a time, could only be defended, in the present state of the law, on the plea that slaughter at the port of landing was not effectual in arresting the progress of the particular disease, and that the exclusion of animals was necessary until the exporting country had taken effectual means to get rid of it.

It must be obvious that such a form of prohibition would not prevent the landing of diseased animals altogether; indeed, it would not in most cases be applied until animals affected with foot-and-mouth disease had been landed, and even then some inquiry would be necessary before the exporting country could be placed under a ban.

The preparation and publication of an Order of Council would occupy several days, and in addition a reasonable time must be allowed for the arrival of animals which were on the sea at the time of passing the Order, and to enable shippers to stop further shipments; and during this time cargoes would continue to be landed, so that it might and probably would happen that by the time the order came into force the infection would have extended to home stock. The risk would not be obviated, even by the peremptory exclusion of animals from landing-places at ports in this country immediately on the discovery of foot-and-mouth disease in a cargo, because it would be quite impossible to prevent ships which had already started with animals on board from coming up to the landing-places; and the slaughter of the animals on board would be attended with greater danger than their removal to a proper place for slaughter on shore.

In short, the measure proposed may be estimated rather as a means of preventing the continued importation of animals affected with foot-and-mouth disease than as an effectual method of totally excluding it from the country. Some additional security against the introduction of the disease would be gained, but at the loss of a large number of animals, as often and for so long as the prohibition was enforced.

### *Proposal to exclude Animals from all Countries where Disease exists.*

The second proposition relates to disease, without specifying any particular disease. Foreign animals are not to be

landed except from countries in respect of which the Privy Council are satisfied that the animals therein are free from disease. This proposition is more comprehensive in its character than the first one, and it suggests several questions which are not easily answered.

It is evident that the onus of proof of freedom from disease must lie on foreign countries, and it may be, indeed has been, asked what kind of evidence will be sufficient to satisfy the Privy Council that disease does not exist. The proof of the existence of disease is evident enough, and at first there would be no difficulty in deciding as to the course to be adopted.

No exporting country is free from one or more of the diseases which are within the terms of the Act of 1878, and therefore, no country could claim exemption; but one reason which has been advanced in favour of prohibition is that foreign Governments and foreign stock-owners would thereby be taught the value of sanitary laws, and be stimulated to take measures to extirpate disease, in order, it is to be presumed, that they might escape the restriction. In this view of the subject, it is easy to foresee that nothing like permanency in the system of cattle trade regulations would be secured. Exporting countries would naturally look forward to the time when the Privy Council might be induced to restore the lost privilege of landing their animals alive, and would not cease to urge their claims to favourable consideration. Perhaps in the greater number of instances an inquiry would show that their claims were not well founded, but it might not always be possible for the Privy Council to maintain a policy of exclusion in respect of countries in which disease was alleged by the authorities to have ceased. The evidence advanced might not be altogether satisfactory—evidence in support of a negative proposition seldom is—but at the same time it might be extremely difficult to question its correctness.

In regard to pleuro-pneumonia, for example, it might be alleged that no case of the disease had occurred for a long period, and that the authorities were satisfied that it had ceased to exist. It would be impossible for the Privy Council in such a case to fix a time of probation at the end of which the country should be considered to be officially free; and it would probably be hardly consistent with official etiquette to reply to the applicants that the Privy Council would not be satisfied that the country was really free from pleuro-pneumonia until all the cattle in the districts where the disease had existed had been subjected to a post-mortem

inspection; nevertheless it is literally true that nothing less than the inspection of the lungs is sufficient to enable an expert to determine with certainty whether pleuro-pneumonia does or does not exist. In illustration of this statement, I may refer to the monthly reports which are received from the Netherlands, in which the statement constantly occurs that no case of pleuro-pneumonia has appeared in the Spoeling district, but a certain number of cattle were found to be affected with that disase when their lungs were inspected in the abattoirs.

Swine-fever is another disease which occurs in many cases in an occult form which cannot be recognised without a careful examination of the lungs and digestive organs of the diseased animals, and it has been conclusively shown that swine which have been exposed to the infection may take the disease, and may communicate it to other swine without exhibiting in themselves, during life, any symptoms which would excite suspicion, although on post-mortem examination the morbid appearances characteristic of the disorder are found to be well defined. In the face of these undoubted facts it would be a most invidious duty for the Privy Council to determine whether or not a country in which either of these diseases had apparently ceased should be kept under restrictions.

Partial prohibition would not provide any security against the accidental landing of diseased animals from healthy countries in which disease might appear suddenly, and from which diseased or infected animals might be sent before the authorities were aware of its presence. This accident has happened in the case of cattle plague, which was detected in German cattle landed at Deptford before the German Government were acquainted with the fact of its presence in the Empire; and such an event is even more likely to occur when the malady is more lightly estimated, as foot-and-mouth disease is in most parts of Europe.

Under any circumstances the proposed scheme of partial prohibition can only be looked upon as an incomplete measure, very difficult to carry into effect, not calculated to afford anything like perfect security against the introduction of foreign diseases, and not at all likely to lead to a permanent and radical change in the meat trade with this country.

### *Prohibition of Animals from all Countries.*

Total prohibition of the landing of animals from all foreign sources and under all conditions is an intelligible proposition

which may be discussed on its merits; and in the first place it is desirable to state clearly what it will mean in actual practice.

Quarantine regulations will form no part of a system which is expected to secure for our live stock absolute immunity against foreign infection. Quarantine answers perfectly so long as none but healthy animals are introduced; but it may safely be affirmed that at some time an infected animal will be introduced, and in the case of foot-and-mouth disease or cattle-plague the measures have yet to be devised which will certainly keep the infection within a limited area; and recent experience has shown that the utmost care may fail to secure a country from the introduction of disease if importation of animals, even under quarantine regulations, is allowed from countries where disease exists.

Advocates of the total exclusion of foreign animals assert that the stock breeders of this kingdom do not require foreign store stock, and in such circumstances quarantine regulations and risks need not be further discussed.

Having determined precisely what the proposed measure really involves, it may next be asked, how is the intention to be carried into effect?

In reply to this question, I may be permitted to refer to the report for 1881, in which I ventured to express the opinion that total prohibition of the importation of foreign animals was not contemplated by the Legislature in passing the Act of 1878. On the contrary, the Act distinctly provides that foreign animals may be landed, and the instructions to the Privy Council in the fifth schedule have reference solely to the parts of ports in which the animals are to be landed. These parts of ports are to be defined by Order of Council, and are to be called Foreign Animals' Wharves, out of which the Act provides that the animals are not to be moved alive.

At the time of the passing of the Act of 1878 it was perfectly well understood that the landing of animals should be prohibited from countries where cattle plague had a constant or occasional existence; and it was also understood that under exceptional conditions it might be reasonably safe to allow animals to be landed without being liable to slaughter or quarantine; and accordingly power was given to the Privy Council for both these purposes. But the terms in which the intentions of the Legislature are conveyed are so carefully guarded that any misconstruction is hardly possible.

Under the provisions of Paragraph IV of the Fifth Schedule to the Act the Privy Council are bound to exempt from slaughter or quarantine animals from any country in relation to which they are satisfied "that the laws thereof relating to the importation and exportation of animals, and to the prevention of the introduction and spreading of disease, and the general sanitary condition of the animals therein, are such as to afford reasonable security against the importation therefrom of diseased animals." The only discretion permitted to the Privy Council is as to the evidence which shall be sufficient to satisfy them on the above-named points. If the Privy Council are satisfied then they shall allow the animals to be landed without being subject to slaughter or quarantine; and, that the Legislature may have an opportunity of expressing an opinion on the subject, it is further provided that "every such order shall forthwith, after the making thereof, if Parliament is then sitting, and if not, then forthwith after the next meeting of Parliament, be laid before both Houses of Parliament."

Power to prohibit the landing of animals and other things is conferred on the Privy Council in section 35 of the Act, in terms which cannot by any form of special pleading be made to bear the interpretation which is commonly applied to them. The words of the section are: "The Privy Council may from time to time make such general or special orders as they think fit for prohibiting the landing of animals, or of any specified kind thereof, or of carcases, fodder, litter, dung, or other thing, brought from any specified foreign country, or any specified part thereof."

It has been repeatedly affirmed that the Privy Council can, without asking Parliament for further powers, or going beyond the terms of section 35, prohibit the landing of animals altogether from all countries, and for all time, a course which must of necessity be adopted before a dead-meat trade will be substituted for the present system; but it must be obvious that the terms "from time to time by general or special orders," and specified foreign countries or specified parts thereof do not suggest such a sweeping and permanent measure as the one which is asked for. By a species of legal jugglery it might be so contrived that one order should follow another and country after country be specified, until at length all exporting countries were included in the list; but no candid supporter of the scheme of total and permanent exclusion of foreign animals would seriously contend that this kind of legislation would have the effect of convincing cattle traders that a new policy was firmly established, and

that they must accommodate themselves to the altered conditions.

To effect the object which the advocates of a foreign dead meat trade have in view only a single paragraph is required, and no country need be specified. A short amendment Act reciting "that, notwithstanding anything in The Contagious Diseases (Animals) Act, 1878, animals brought from any port or place out of the United Kingdom shall not be landed at any port or place in the United Kingdom," would meet the difficulty, and leave no room for doubt as to the exact intention of the Legislature. Whether or not such a measure would be in all respects as successful as its advocates anticipate may be open to question. Absolute security for our herds and flocks against foreign infection is a well-sounding phrase; but it must not be forgotten that infection may be conveyed by the agency of persons and substances which have been in contact with diseased animals. One of the most extensive outbreaks of foot-and-mouth disease in this country commenced in 1839, at which time the landing of foreign animals was prohibited, and the prohibition had been in force for several years.

That the risk of infection by indirect means is not an imaginary one is now generally admitted, and it is not impossible, assuming for the moment slaughter of foreign animals at the ports of shipment to be an accomplished fact, that the danger might be considerably increased. Certainly the establishment of abattoirs near the coast would offer the foreign trader special facilities for the disposal of diseased and infected animals, and an active importer and his assistants might conduct their business in the slaughter markets, say on the coast of France on the afternoon of one day, and be engaged in buying or selling English stock in the Metropolitan Market on the morning of the next. Under such circumstances an outbreak of foot-and-mouth disease would not be a surprising event, nor one without precedent.

If, however, the experience which we have had of the effects of prohibition in regard to specified countries, or specified parts thereof, is to be accepted as an illustration of the effects of universal prohibition, the risk of infection from the foreign slaughtering establishments on the Continent would not be incurred, because no such places would be established. In that case we should gain greater security than we at present enjoy against foreign diseases—an absolute security being unattainable under any system—at the cost of the whole of the animals which we annually receive from Europe.

In 1877 an outbreak of cattle plague, which was traced to the importation of diseased cattle from Hamburgh, led to the prohibition of cattle from Germany and Belgium. The Order has continued in force up to the present time, and it may be calculated that, taking the average number imported during the six years from 1871 to 1876 as a basis, we have lost in consequence about 25,000 cattle representing something like 175,000 cwts. of beef, each year since that time, making a total loss in the six years to the end of 1882 of over 1,000,000 cwts If total prohibition of cattle from Belgium and Germany has had any effect upon the development of the dead meat trade, which is doubtful, the effect has not been satisfactory, judging from the returns of importation of beef from these countries during the six years which preceded the prohibition, no comparison with the quantity imported from that time to the present.

From 1871 to 1876 inclusive the imports of beef from Belgium amounted to 2908 cwts.; from Germany the quantity 191,975 cwts. From 1877 to 1882 inclusive, during the whole of which period cattle from Belgium and Germany were not allowed to be landed, the imports of beef from Belgium amounted to 632 cwts., and from Germany to 31,060 cwts. In other terms, Germany and Belgium sent to this country during the last six years, in which the landing of cattle was prohibited, 163,191 cwts. less beef than we received from them in the six preceding years, during which the landing of cattle was permitted.

It may, however, be contended that no satisfactory conclusions can be drawn from the experience of a few years of partial prohibition, subject to relaxations from time to time in regard to parts of the prohibited country; whereas, if it were once determined by an Act of the Legislature that for the future no live animals from any foreign source should be landed in this country under any circumstances, the establishment of dead meat trade would follow as a matter of necessity. Those who are best acquainted with the details of the foreign trade are not so sanguine as to the results of total prohibition of foreign animals. On the contrary, they point to the fact that even under the present system we have to compete with the large stock markets of the Continent, and that the country which gives the highest price commands the best supply. Total exclusion of foreign stock from this country would most probably lower the price of meat abroad, and benefit the foreign consumer at the expense of the exporter; but so long as the continental markets offer a fair opportuuity of disposing of the animals, the breeder would

not be likely to alter his system of trading, and convert his live stock into a perishable commodity for exportation, instead of sending them in the usual course to live stock markets.

Under all these circumstances it would be well to be prepared to accept all the consequences which would result from the withdrawal of the whole live meat supply which we receive from the Continent of Europe, from the day on which the Act prohibiting the landing of animals from abroad takes effect.

It is recognised as a fact that "Europe is no longer able to supply enough meat to feed her population," and perhaps the strongest argument in favour of the substitution of a dead meat for a live meat trade may be based on the assumption that sooner or later we must supplement our deficient food supplies by drawing upon the vast resources of our Colonies. Frozen meat would come more naturally from Australia and New Zealand than from France or Germany, while there is no temptation to the exporter to ship living animals from those distant regions.

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## SECOND REPORT OF EXPERIMENTS ON THE DEVELOPMENT OF THE LIVER-FLUKE (*FASCIOLA HEPATICA*).

By A. P. Thomas, M.A., F.L.S., Balliol College, Oxford.

(*Concluded from p.* 341.)

In endeavouring to refer the young larvæ of *Distomidæ* to their respective adult forms, we have but few characters upon which we can rely, as so many of the most conspicuous characters of the young are only transitory larval peculiarities, whilst on the other hand many of the organs of the adult are not visible in the young, even in rudiment. The most valuable of the permanent characteristics are the relative proportions of the suckers and the nature of the cuticular structures. It is usually considered that the suckers preserve the same relative proportions during growth; but such is not the case in *Fasciola hepatica*, for here the ventral sucker grows relatively more rapidly than the oral. This is perhaps only natural, as the hinder portion of the body rapidly outstrips the anterior portion during growth, as it contains the reproductive organs. This fact is of greater importance, seeing that we have so few characteristics to assist us in the difficult task of connecting the larva with the adult. In the adult, the diameters of the oral and

ventral suckers are on the average in the ratio 1 : 1·35, though there is much individual variety. In the largest fluke I possess, 34 mm. in length, the ratio is 1 : 1·42. But in the smallest specimen I have yet found, which was only 1·1 mm. in length, the two suckers are of exactly equal size, and the same is the case in a specimen 2·2 mm. in length. Examples of the size of the latter, however, have usually the ventral sucker rather larger, the ratio of the oral to the ventral sucker being on the average about 1 : 1·1. In still larger examples, 6—8 mm. long, the ratio is about 1 : 1·2. It may be inferred, therefore, that the suckers in the larval form of the liver-fluke scarcely differ in diameter, though the ventral may possibly be the larger to a trifling extent. In the tailless larval form found by Leuckart, the ratio of the suckers was as 7 : 8 or 1 : 1·143.

It is worthy of mention in this connection that no less than ten species of rediæ or sporocysts have been recorded containing tail-less distome-larvæ instead of the more usual tailed cercariæ. Most of the species appear to be good, though others are very imperfectly known. De Filippi described under the name of *Distoma paludinæ impuræ inerme*, a tailless distome-larva, which has many points of resemblance with the one found by Leuckart, and was produced in a similar redia without any lateral processes, and he proved that it was the larval form of *Distoma perlatum*, found in the tench, &c. From these observations of De Filippi it seems probable that the tailless form found by Leuckart is destined to develop in a cold-blood host rather than in a mammal.

Another of the rediæ found in *Limnæus truncatulus* appears to be the same as the one I had already met with in the same snail on infected fields at Wytham.* The cercariæ produced with it are characterised by the presence of a lobed lateral organ, composed of coarsely granular cells. Leuckart does not consider that this cercaria has any connection with the liver-fluke, partly because he did not detect any spines upon the cuticle. I have seen the same larval trematode since writing my former paper, though not in sufficient quantity to allow me to try feeding experiments, and I am able to say that the cuticle of the oldest cercariæ is beset anteriorly with spines; in the less mature cercariæ they could not be seen. It appears to me that this form is to be regarded with suspicion for the following reasons:—1. Its anatomical characters are not contradictory to the idea that it may prove to be the larva of *Fasciola;* the cuticle of the anterior part of the

* 'Royal Agricultural Society's Journal,' vol. xvii, 1881, p. 19.

body is finely spinose, and the oral and ventral suckers are of nearly equal diameter, the ventral being sometimes a little the larger. The lobed lateral organ I regard, for a reason already given,* as merely a passing larval character. 2. The rediæ show a greater resemblance to the young rediæ descended from fluke-eggs, as I have observed them, than do those containing tailless distomes. The resemblance indeed is very striking. 3. The cercaria has the suspicious habit of encysting itself upon water-plants, grass, &c. Moreover, I have twice met with this cercaria in the course of my investigations—on one occasion in almost the only mollusc that could be found on the scene of an outbreak of the liver-rot at Wytham, whereas I have never found the tailless larval form mentioned by Leuckart. Experiment must decide whether this, or the tailless form in question, or some other cercaria, is the juvenile form of the liver-fluke.

It gives me much pleasure to take this opportunity of thanking Dr. Acland for kindly permitting me to use the Sanitary Laboratory, in which I am continuing my experiments.

It would greatly assist me in bringing my researches to a speedy and successful termination, if any gentleman who is interested in the question could kindly forward to me, at the University Museum, Oxford, gatherings of snails, more especially of *Limnæus pereger* and *L. truncatulus*, from the scene of any well-marked fresh outbreak of fluke-disease, or from ground which is known always to give the rot. The snails should be as numerous as possible, and should particularly include young and half-grown examples. The accompanying figures represent the two kinds of snails, towards

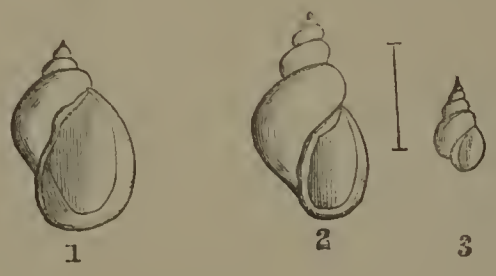


FIG. 6.—(1.) *Limnæus pereger*, an average specimen, natural size. (2.) *Limnæus truncatulus*, twice the natural size. (3.) The same. A common variety, natural size.

which, in the present state of the investigation, the evidence points most strongly as the bearers of the larval form of the liver-fluke, and which I desire to obtain from infected fields.

* 'Royal Agricultural Society's Journal,' vol. xvii, 1881, p. 20.

With regard to the precautions to be taken against the liver-rot, I am able to say now still more definitely, that to prevent sheep from getting the disease, they must be kept away from all ditches, marshy places, &c., where such snails can be found.

*Addendum.*

Since the above report has been in type I have carried my researches further, and have been enabled to complete the cycle of forms which occur in the life-history of the liver-fluke.

In a *Limnæus truncatulus,* dissected on the thirty-first day after the first exposure to infection, I found that the rediæ of the liver-fluke had much increased in size. The largest was 1·12 mm. long, and ·23 mm. broad across the middle of the body. The larger rediæ contained nearly a score of germs in various stages of development. The smaller were still spherical; the larger ones, situated more anteriorly, were of an irregular oval shape, with a smooth surface, and enclosed each in a loose and delicate pellicle. The largest germ was ·116 mm. long, by ·073 broad. But there was no clear evidence as to the form these spores would assume.

In another snail dissected at the beginning of the seventh week after infection, I found rediæ containing cercariæ, and although the latter were not quite perfectly mature, they were still far enough advanced to enable me to determine the character of the cercaria. I have mentioned above that Professor Leuckart found tailless distome-larvæ in a redia in *L. truncatulus,* and that, inferring simply from the anatomical character of the larvæ, and notwithstanding that the form of the redia was unfavorable to such a conjecture, he considered himself entirely justified in assuming, until further results, that these belonged to *Fasciola hepatica.* But I have already shown that the characters of the redia and larvæ furnished me with reasons for gravely doubting the correctness of this conjecture, and from my further reseaches I am now warranted in asserting that this tailless form does not belong to the liver-fluke, for the true cercaria descended from the embryo of the fluke has a tail of considerable length. The body of the cercaria is about a quarter of a millimeter in length, the oral and ventral suckers are of nearly equal size (·05—·06 mm.), the ventral sucker being situated just behind the middle of the body. The pharynx is quite distinct, and the digestive tract is simply forked, the two divisions reaching to the end of the body, but not showing any of the numerous branches so characteristic of the

adult. Around each cercaria and germ is a loose delicate pellicle.

The rediæ containing the cercariæ still shows the characteristic ring running round the body a little behind the pharynx, and at the hind end are still visible the two short lateral processes, now, however, more stumpy than in the younger rediæ. The digestive tract was short, being only ·24 mm. long in a redia of four times the length.

There can be no doubt that the cercariæ I found really belong to the liver-fluke. The rediæ in which they occurred were closely similar to those I have found throughout in the examination of the snails I have infected with embryos, and in the same snail with these rediæ was a sporocyst, still recognisable by the eye-spots and papilla as belonging to *F. hepatica*. Moreover, *all* the specimens of *L. truncatulus* which I infected have proved to contain larval trematodes, clearly belonging to one and the same zoological species; and as a preliminary precaution a number of snails of the same gathering as those submitted to infection were examined, and all were completely free from larval trematodes.

In the same snail I found also rediæ producing not cercariæ but other rediæ, which we may term daughter-rediæ. Indeed I have not been able to prove as yet whether the rediæ forming the second generation in the series of forms belonging to the liver-fluke ever produce cercariæ. In many cases, at any rate, the cercariæ only appear as the fourth generation, and it may be that this is always the case. The rediæ generating rediæ appear to have a larger pharynx and intestine, and to contain fewer germs than those producing cercariæ. I saw as many as three well-formed rediæ in a single-parent redia in addition to several smaller germs. The ring behind the pharynx is well-developed, and in one parent-redia I found it so large that the diameter of the body was nearly doubled at this point.

I reserve further details as to the structure of the cercaria and redia for a subsequent paper. I may, however, mention that the existence of as many as four generations gives rise to a great increase in number whilst within the snail; so that a single fluke-egg may well give rise to over 1000 cercariæ.

The one point remaining that I have still to elucidate is the manner in which the cercariæ are transferred to the sheep, and this I hope very soon to accomplish. This may be effected either by the sheep eating the mollusc containing the cercariæ, or the cercariæ may pass out of the snail and

encyst upon grass, &c. The presence of a tail is certainly in favour of the latter view. Leuckart is inclined to believe that the larval flukes are swallowed with the snail containing them, principally on the ground that when flukes are found in an animal, they are usually very numerous. But a stroll round the Oxford Meat Market is quite enough to convince one that sheep often contain a very limited number of flukes. The bile-ducts of the liver are then opened, the flukes removed, and the livers sold for food. Moreover, I have often had livers sent me which contained a very small number of flukes, on one occasion only a single fluke, on another occasion seven.—*Journal of the Royal Agricultural Society of England.*

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## STERILITY.

Extract from the Gulstonian Lectures. Delivered by J. Matthews Duncan, M.D., F.R.C.P.L.

(*Concluded from p.* 343.)

An interesting department of the sterility of animals is that which results from confinement. This seems specially to affect what are vaguely designated the noble animals. Those which are sterile show great variations; some disdain to cohabit or have lost sexual desire; others have increase of sexual appetite, and cohabit freely or excessively, but without impregnation resulting, or with the result very rarely following. Some if impregnated bring forth only abortions, or young which are dead-born, or, if alive, feeble and ill-formed. There is, for instance, as Shorthouse has pointed out, a common occurrence of cleft palate in the lion's cubs born in the Zoological Gardens.

Among birds in confinement there are many good examples of change of sexual habits and of sterility. In some cases they have no eggs, or, if they produce, they have only comparatively few, or they may neglect the eggs when produced, or the eggs duly cared for may be incapable of being hatched. This abortional sterility arising from imperfection of eggs as a result of confinement is well proved by experiments made in France on the common fowl. When these birds were allowed considerable freedom, 20 per cent. of the eggs failed to be hatched; when less freedom was allowed, 40 per cent. failed; when closely confined, 60 per cent. were not hatched.

The power of temperatures that are not according to an animal's nature to induce sterility is no doubt very great. Darwin mentions that Mr. Miller, a former superintendent

of the Zoological Gardens, believes that the sterility of the carnivora there was increased by increase of exposure to air and cold. In winter, inadequately sheltered cows either cease to give milk or give it in diminished quantity. "And," says Spencer, "though giving milk is not the same thing as bearing a young one, yet, as milk is part of the material from which a young one is built up, it is part of the outlay for reproductive purposes, and diminution of it is a loss of reproductive power." Failure to maintain the cow's heat may entail such reduction in the supply of milk as to cause the death of the calf. Hard living, says Darwin, retards the period at which animals conceive, for it has been found disadvantageous in the northern highlands of Scotland to allow cows to bear calves before they are four years old. Roulin found that in the hot valleys of the equatorial Cordilleras sheep were not fully fecund.

The common fowl will not breed in Greenland or Northern Siberia. "In this country, it is fed," says Spencer, "through the cold months, but, nevertheless, in midwinter it either wholly leaves off laying or lays very sparingly. And then we have the further evidence that if it lays sparingly it does so only on condition that the heat, as well as the food, is artificially maintained. Hens lay in cold weather only when they are kept warm; to which fact may be added the kindred one that when pigeons receive artificial heat they not only continue to hatch longer in autumn, but will recommence in spring sooner than they would otherwise do."

On the subject of the interbreeding of animals there is a vast body of opinion as well as of facts showing its power in producing monstrosity and its ally sterility. "If we were," says Darwin, "to pair brothers and sisters in the case of any pure animal, which from any cause had the least tendency to sterility, the breed would assuredly be lost in a few generations." Elsewhere he shows that "long-continued close interbreeding between the nearest relations diminishes the constitutional vigour, size, and fertility of the offspring, and occasionally leads to malformations, but not necessarily to general deterioration of form or structure. This failure of fertility shows that the evil results of interbreeding are independent of the augmentation of morbid tendencies common to both parents, though this augmentation no doubt is often highly injurious. Our belief that evil follows from close interbreeding rests to a large extent on the experience of practical breeders, especially of those who have seen many animals of the kind which can be propagated quickly; but it likewise rests on several carefully recorded experiments.

With some animals close interbreeding may be caried on for a long period with impunity by the selection of the most vigorous and healthy individuals; but sooner or later evil follows. The evil, however, comes on so slowly and gradually that it easily escapes observation, but can be recognised by the almost instantaneous manner in which size, constitutional vigour, and fertility are regained when animals that have long been interbred are crossed with a distinct family."

Regarding the very remarkable subject of sterility of sexual connection with special individuals only, Darwin says:—"It is by no means rare to find certain males and females which will not breed together, though both are known to be perfectly fertile with other males and females. We have no reason to suppose that this is caused by these animals having been subjected to any change in their habits of life. . . . . The cause apparently lies in an innate sexual incompatibility of the pair which are matched. Several instances have been communicated to me by Mr. W. C. Spooner (well known for his essay on Cross-breeding), by Mr. Eyton of Eyton, by Mr. Wicksted, and other breeders, and especially by Mr. Waring of Chilsfield, in relation to horses, cattle, pigs, foxhounds, other dogs, and pigeons. In these cases, females which either previously or subsequently were proved to be fertile, failed to breed with certain males with whom it was particularly desired to match them. A change in the constitution of the female may sometimes have occurred before she was put to the second male, but in other cases the explanation is hardly tenable, for a female known not to be barren has been unsuccessfully paired seven or eight times with the same male, likewise known to be perfectly fertile. With cart-mares, which sometimes will not breed with stallions of pure blood, but subsequently have bred with cart stallions, Mr. Spooner is inclined to attribute the failure to the lesser sexual power of the racehorse. But I have heard from the greatest breeder of racehorses at the present day, through Mr. Waring, that it frequently occurs with the mare to be put several times during one or two seasons to a particular stallion of acknowledged power, and yet prove barren, the mare afterwards breeding at once with some other horse. These facts are worth recording, as they show, like so many previous facts, on what slight constitutional differences the fertility of an animal often depends."

Before leaving the subject of the causes of sterility of animals, I quote a passage from Darwin regarding the results of confinement. "Sufficient evidence," says he, "has now been advanced to prove that animals, when first confined, are

eminently liable to suffer in their reproductive systems. We feel at first naturally inclined to attribute the result to loss of health, or at least to loss of vigour, but this view can hardly be admitted when we reflect how healthy, long-lived, and vigorous many animals are under captivity, such as parrots, and hawks when used for hawking, chetahs when used for hunting, and elephants. The reproductive organs themselves are not diseased, and the diseases from which animals in menageries usually perish are not those which in any way affect their fertility. No domestic animal is more subject to disease than the sheep, yet it is remarkably prolific. The failure of animals to breed under confinement has been sometimes attributed exclusively to a failure in their sexual instinct; this may occasionally come into play, but there is no obvious reason why this instinct should be specially liable to be affected with perfectly tamed animals, except, indeed, indirectly, through the reproductive system itself being disturbed. Moreover, numerous cases have been given of various animals which couple freely under confinement, but never conceive, or, if they conceive and produce young, these are fewer in number than is natural to the species. In the vegetable kingdom instinct of course can play no part, and we shall presently see (he says) that plants, when removed from their natural conditions, are affected in nearly the same manner as animals. Change of climate cannot be the cause of the loss of fertility, for, whilst many animals imported into Europe from extremely different climates breed freely, many others, when confined in their native land, are completely sterile. Change of food cannot be the chief cause, for ostriches, ducks, and many other animals, which must have undergone a great change in this respect, breed freely. Carnivorous birds, when confined, are extremely sterile, whilst most carnivorous mammals, except plantigrades, are moderately fertile. Nor can the amount of food be the cause, for a sufficient supply will certainly be given to valuable animals, and there is no reason to suppose that much more food would be given to them than to our choice domestic productions which retain their full fertility. Lastly, we may infer, from the case of the elephant, chetah, various hawks, and of many animals which are allowed to lead an almost free life in their native land, that want of exercise is not the sole cause. It would appear that any change in the habits of life, whatever these habits may be, if great enough, tends to affect, in an inexplicable manner, the powers of reproduction. The result depends more on the constitution of the species than on the nature of the

change; for certain whole groups are affected more than others; but exceptions always occur, for some species in the most fertile groups refuse to breed, and some in the most sterile groups breed freely. Those animals which usually breed freely under confinement rarely breed, as I was assured, in the Zoological Gardens, within a year or two after their first importation. When an animal which is generally sterile under confinement happens to breed, the young apparently do not inherit this power; for had this been the case, various quadrupeds and birds which are valuable for exhibition would have become common. Dr. Broca even affirms that many animals in the Jardin des Plantes, after having produced young for three or four successive generations, become sterile; but this may be the result of too close interbreeding. It is a remarkable circumstance that many mammals and birds have produced hybrids under confinement quite as readily as, or even more readily than, they have procreated their own kind. Of this fact many instances have been given, and we are thus reminded of those plants which when cultivated refuse to be fertilised by their own pollen, but can easily be fertilised by that of a distinct species. Finally, we must conclude, limited as the conclusion is, that changed conditions of life have an especial power of acting injuriously on the reproductive system. The whole case is quite peculiar, for those organs, though not diseased, are thus rendered incapable of performing their proper functions, or perform them imperfectly."—*Med. Times and Gazette.*

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## ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

Monthly Council, Wednesday, May 2nd, 1883. Present, the Duke of Richmond and Gordon, K.G., President, in the chair.

### Veterinary Committee.

*Mr. Dent* presented the recommendation of the Committee that Captain Russell of Grantham be the Society's District Veterinary Surgeon in place of Mr. Greswell, deceased. An application having been received from the Lincolnshire Agricultural Society as to an inquiry into the losses in that county from abortion amongst ewes, and the fall of dead lambs, the Committee recommended that application be made to the Royal Veterinary College to allow Professor Axe to make inquiry into this subject and report to the Committee, and that a sum not exceeding £25 be granted for that purpose.

This report was adopted.

# ROYAL COLLEGE OF VETERINARY SURGEONS.

## SPECIAL MEETING OF THE COUNCIL, HELD AT THE FREEMASONS' TAVERN, MAY 7TH, 1883.

The President, G. FLEMING, Esq., in the Chair.

*Present:*—Messrs. Fleming, Pritchard, Greaves, Wragg, Dray, Taylor, Cartwright, Perrins, Gowing, Santy, B. Cartledge, and the Secretary.

The *Secretary* read the notice convening the meeting.

Letters were announced from Professor Simonds and Mr. Broughton, regretting their inability to be present.

The *Secretary* announced that the Central Veterinary Medical Society had presented the Council with fifty guineas towards the College Fund.

On the motion of *Mr. Dray*, seconded by *Mr. Cartwright*, a vote of thanks was passed to the Central Veterinary Medical Society for their gift.

*Mr. Greaves* asked whether any action could be taken in reference to the £1000 that was proffered to them under the will of the late Mr. Field.

The *President* said it had been decided to discuss that subject at the next quarterly meeting of the Council.

On the motion of *Mr. Taylor*, seconded by *Mr. Dray*, the minutes were taken as read.

*Mr. Dray* proposed the re-election of Mr. A. W. Hill as Registrar. The past ought to be a guide to the future, and Mr. Hill's antecedents were a passport in his favour. His assiduity and diligence were deserving of every commendation. His actions manifested his zeal in the interests of the profession.

*Mr. Wragg* seconded the motion, which was unanimously agreed to.

The *Secretary* thanked the Council for the honour they conferred upon him. He had had an immense amount of work, but felt much gratified to know that the Council had taken cognizance of his labours. With a constituency now numbering 3400, it was sometimes difficult to please every one, notwithstanding the great desire to do so.

*Mr. Dray* said that for some time the work of the Registrar had been Herculean. He had had opportunities of judging how very hard Mr. Hill had worked in the performance of his duties as Registrar. The College had not only been besieged by letters, but also by people at all hours of the day, and even at some hours of the night, and Mr. Hill had always received them in a gentlemanly and courteous manner. The Council ought to recognise such valuable services, and he was sure they would, and he therefore proposed "That a bonus of £50 be presented to him."

*Mr. Santy* seconded in equal terms the proposal.

*Mr. Greaves* asked the President whether it was in the power of the meeting to make such a grant.

The *President*, while endorsing every word that Mr. Dray had said, thought that the proposal should be reserved until the next quarterly meeting, when the proposal would be considered by the whole Council.

*Mr. Dray* expressed a hope that it would be unanimously supported when he brought it forward again at the quarterly meeting. He hoped it would appear on the Agenda on that occasion.

The Council thereupon ordered that it be entered on the Agenda for the next quarterly meeting.

The *Secretary* read a letter from the Privy Council office, dated May 4th, 1883, stating that a petition had been received from the Highland and Agricultural Society of Scotland objecting to the part of the Supplemental Charter which provided for a term of pupilage for candidates, and suggesting that the final examination should be of a practical nature. If the student failed to pass, he might be required to study at a veterinary college or with a veterinary surgeon. The Lord President wished to know if the Council had any observations to offer with regard to these suggestions.

The *President* said he thought the reply to be sent should be couched pretty much in the terms of the discussion at the Council meeting, to the effect that the Royal College of Veterinary Surgeons had for years instituted an examination such as that suggested, but it was decided by a majority of the Council that there were not facilities for affording the requisite instruction at the schools, and that even the examiners at the final examination had not facilities for testing the fitness of students in that respect. If the Privy Council were made aware of that fact it would probably be sufficient.

*Professor Pritchard* said it occurred to him that it was rather impudent on the part of the Highland Society, after the arrangement that had taken place between them and the Royal College of Veterinary Surgeons.

The *President* said he most acutely felt the position that had been taken up by the Highland Society. He had seen three petitions that had been lodged against the Supplemental Charter. One was from the Edinburgh Town Council, another from the Highland Society, and the third from the Town Council of Glasgow. The latter objected to the raising of the fees and the pupilage; in the other petitions objections were also made to these, and one of the reasons set out was that by serving a pupilage the morals of the pupils would be injured. A more slanderous assertion could not be made against a body of professional gentlemen. Still, he did not blame the Edinburgh Town Council or the Highland Society, but the advisers of those bodies, and he was afraid that the instigation to such assertions came from members of their

own profession. The morals of the members of the veterinary profession would compare favorably with those of any other profession, and he could safely say that at the veterinary schools in Edinburgh the morals of the students were much more exposed to damage than they would be if the young men were simply pupils of members of the profession. If such assertions as he had alluded to were put into the mouths of public bodies by members of their own profession, how could they ever hope to maintain their position? The petitions were shown to him privately, and he confessed that when the Lord President of the Privy Council asked him what this meant he could not answer him. If the veterinary profession did not know what its own requirements were, he was perfectly certain that the Highland Society did not. He therefore thought that in their reply to the letter they should endeavour to show that the Highland Society was going beyond its province. that the subject had been fully discussed by the profession, and that the terms of their petition for a Supplemental Charter were arrived at after due consideration. The Highland Society evidently did not know that for years the Council had instituted the examination now suggested, neither did they appear to know the requirements of the profession. The question was a very serious one, and the Highland Society had no right to interfere in the matter. It was solely a question between the Privy Council and the Royal College of Veterinary Surgeons.

*Mr. Greaves* said he was delighted with what the President had said. The Highland Society, as a corporation, could not be aware of the true position of the profession. There was not a vestige of truth in the charge with respect to the demoralising of the youths, which was ten times as great at the colleges, especially in Edinburgh, as at any private establishment. Professor Spooner and other men of great eminence had said, over and over again, that they could not give a practical education to the students in the short time that they remained at the colleges, and they required other teaching in order to make them practically efficient.

*Mr. Dray* proposed that a letter be sent to the Lord President of the Privy Council, embodying the views stated by the President.

*Mr. Wragg* seconded the motion, which was agreed to.

*Professor Pritchard* asked if there was any way of ascertaining who the particular advisers of the Highland Society and the Edinburgh Town Council were.

The *President* said it was easy to guess from the language that had sometimes been used at the Council table.

A vote of thanks to the President terminated the proceedings.

## THE FORTIETH ANNUAL GENERAL MEETING WAS HELD AT THE FREEMASONS' TAVERN, MAY 7TH, 1883.

The President, G. FLEMING, Esq., in the Chair.

*Present*:—Messrs. G. Fleming, W. A. Taylor, A. H. Santy, Jas. Reilly, H. R. Perrins. H. J. Cartright, Geo. A. Banham, W. Williams, James Freeman, B. Cartledge, Thomas Greaves, G. Western, Thomas Walley, John Pemberthy, John George Cross, H. W. Thomas, J. S. Price, C. Moir, J. Mackinder, James Lambert, T. D. Lambert, E. T. Cheesman, Thos. Walton Mayer, W. J. Mulvey, David Dudgeon, General Sir F. W. Fitzwygram, M. J. Harpley, H. D. Gibbings, T. Briggs, W. Robertson, F. H. Y. Pedler, D. Gibbons, F. W. Wragg, William Pritchard, William Wilson, J. T. King, Frederick G. Samson, James Rowe, E. M. Davy, Thomas Burrell, George J. Gould, Henry B. Hancock, Percy B. Spooner, J. McCall, W. G. W. Boswell, T. W. Gowing, junr., C. Whitney Gillard, C. C. Sanderson, A. J. Owles, John Ward, Peter Taylor, F. Morton Wallis, Alex. Lawson, M. Hack, W. Burt, A. R. Charles, J. Gibbs, James Hall, George Gray, W. B. Walters, Ben. H. Russell, J. G. Parr, W. H. Bloye, J. H. Ferguson, W. Helmore, Osborn Hills, Alfred C. Wild, Layton J. Blenkinsop, Edwd. S. Shave, Thomas Moore, Thomas Pottinger, Charles Sheather, J. E. Elphick, A.V.D., J. Roalfe Cox, J. M. Gillingham, Hartley J. Batt, Edward Woodger, T. G. Batt, Sydney H. Slocock, John Cameron, James Broad, W. R. Hagger, William Hunting, Henry L. Simpson, and A. W. Hill, Secretary.

The *Secretary* read the notice convening the meeting.

### *Election of Council.*

The *Secretary* read the result of the ballot for members of the Council, from which it appeared that Messrs W. Robertson obtained 679 votes; J. W. Axe, 489; F. W. Wragg, 476; W. Whittle, 442; W. Duguid, 406; J. R. Cox, 386; Alex. Robinson, 377; C. Stephenson, 303; W. Broughton, 273; J. Borthwick, 250; J. Woodger, 216; J. D. Barford, 195; H. Olver, 165; and W. B. Walters, 108.

The first six on the list were elected members of the Council.

Messrs. G. R. Dudgeon, Charles Sheather, Percy B. Spooner, Henry J. Hancock, Harry C. Talbott, Thomas Pottinger, H. Durant Gibbings, and Ernest Edwin Batt, officiated as Scrutineers.

On the motion of *Mr. Dray*, seconded by *Mr. P. Taylor*, a vote of thanks was passed to the Scrutineers.

The minutes of the last annual meeting were taken as read and signed by the Chairman.

The report was then received and taken as read.

*Mr. T. W. Mayer* moved the adoption of the report. With reference to the new building, he said he did not think they

would obtain any assistance from the Treasury. It was useless to ask for money, but they had a right to ask for a site upon which to build; and if the Government were disposed to recognise the veterinary profession, which they had never done yet, the least they could do was to give them a spot to build on. He hoped that the Council would endeavour to proceed in this matter, for with the number of members that they had they ought to be able to raise enough money to build a moderate-sized church. They had received a munificent benefaction from the estate of the late William Field, and he had no doubt that that would exercise a stimulating effect upon the profession, not only to secure that benefaction but to increase it. It was his good fortune for a number of years to enjoy the friendship and hospitality of the Field family, and he could say that no more worthy man ever lived, or one more desirous of promoting the efficiency of the veterinary profession than William Field. (Applause.)

*Mr. Mackinder* called attention to the part of the report referring to the registration of existing practitioners, which stated that the Council had required objections to be made in the form of an affidavit. This he said had been found very objectionable; in most cases the information could be obtained in other ways, and they ought not to insist upon a sworn affidavit.

*Mr. W. J. Mulvey* concurred in the objection, and mentioned the case of one man who applied for registration, who had been sentenced to five years' penal servitude for robbing the Postmaster-General while serving as a postman in a large town. He (Mr. Mulvey) brought the case under the notice of the College, and sent evidence of the fact, but he declined to make an affidavit on the subject. The necessary evidence could have been obtained by the Registration Committee by applying at the Home Office.

*Mr. Dray* said the Registration Committee had been most careful not to place any man upon the Register who had been convicted before the magistrates. It may have happened that improper persons had been admitted to the Register, notwithstanding the vigilance that had been exercised; but he could assure the members that the Registration Committee had performed their duties in a most diligent and conscientious manner.

*Captain Russell* asked what steps could be taken in the case of persons styling themselves veterinary surgeons who were not entitled to do so.

*Mr. T. S. Price* called attention to the voting papers for the Council, and asked why it was necessary that they should be sent in seven days before the meeting was held. He thought two days would have been quite sufficient. With reference to the handsome gift from their respected friend Mr. Field, he wished to impress upon the members that unless they could find another £1000 within twelve months, that money would be lost

to them. The Council should, therefore, strain every nerve to make it well known to the profession in general that they must produce £1000 before they could claim that gift as their own. With regard to the registration of existing practitioners, he knew that the Council had had a very arduous duty to perform, but it did seem an extraordinary thing that they should send letters out stating that members of the Royal College of Veterinary Surgeons protesting against persons applying for registration must send in their reasons before a certain date, and then, when those written protests were sent in, that a paper should be sent from the Council to say that the protests must be in the form of a statutory declaration. He and two or three other London members called a meeting and got these statutory declarations drawn up as quickly as possible, and he had the satisfaction of taking to the Secretary of the Royal Veterinary College ninety-one statutory declarations against persons in London who wanted to be placed on the Register, and he thought if that meeting had not been called there would have been a far greater number placed upon the Register than there were at the present moment. The result of the action of the Council, however, was that several gentlemen were so disgusted after what they had done that they said they would not take any further trouble in the matter at all. With regard to the new Supplementary Charter, he thought it would be a great advantage to the profession to enforce pupilage. It was a step in the right direction, and he should be glad to see it carried out. It was also fair that students should pay increased fees for the advantages that they enjoyed.

*Mr. Hunting* then criticised the report in considerable detail. With reference to the election of examiners, he thought the present Board of Examiners was a very good one, and he should be sorry to see the Council try to get rid of those members of the medical profession who had rendered such valuable services in past years by assisting at their examinations. The matriculation examination was a step in the right direction, but he thought that a man should be allowed to make up a sufficient number of marks in the obligatory subjects by excessively good work in the voluntary subjects. As to Euclid and algebra, he thought they might safely be left out and replaced by modern languages and, say, physics. It would be better for a man to pass a fairly good examination in electricity, statics, or dynamics, than in ancient or modern history; for certainly a knowledge of electricity at the present day would be of more advantage than the ability to write a learned treatise upon the causes that brought about the second Punic war. He had nothing but praise and thanks to say about the new Act and the men concerned in it. He thanked the Council, the Committee, and the President, and he would go out of his way to thank him more positively were it not that he was reminded that more eloquent tongues than his would do it by-and-bye. With regard to the

new Supplementary Charter, he objected altogether to the period of pupilage, and thought that the object sought to be obtained would have the effect of putting every possible obstacle in the way of men entering the profession. Out of the six points named, was there one that was worth the trouble or expense of going to the Government, or worth keeping up this eternal quarrel between the governing body and the schools? Was it worth while adding any more friction by means of this proposed charter, consisting of six points, two of which were injurious and three altogether useless? He concluded by proposing an amendment—"That the report be not adopted unless the whole paragraph in reference to the new Supplementary Charter was omitted."

*Mr. Wilson*, in seconding the adoption of the report as proposed by Mr. Mayer, spoke of the increase in the examination fees. Looking at the great expense upon a young man's entering the profession, he thought they should consider well before making a proposition to increase that expense.

*Mr. Dudgeon* said he was old enough to remember the time when the first attempt at compulsory pupilage was proposed, and that resulted in the formation of the Highland Society's Board. It was only three years ago that that Board was done away with, and it was rather singular that an attempt should be so soon made to enforce a compulsory pupilage clause. He thought that the Examiners had sufficient power to see that every student had a thorough practical knowledge of his profession before he obtained his diploma. To say that he must become the pupil of a registered veterinary surgeon was going a great deal too far. He should certainly enter his protest against imposing a compulsory pupilage, and also against increasing the examination fees.

*Mr. Owles* supported the pupilage clause. He said the very fact of the recent Bill doing away with a great number of practitioners in the country rendered it imperatively necessary that the profession should provide well-qualified men to take their places, and it was a question to be considered how those men were to be best educated and rendered capable of performing the duties required of them. His experience of young men from College showed a most lamentable want of elementary practical knowledge; and therefore, although the Council had not pledged themselves to put in force every clause which the new Charter would authorise, he ventured to say that this was one of the clauses which they believed to be absolutely necessary.

*Professor Williams* said the whole matter lay in a nutshell. Every one of the schools objected to the pupilage clause. If, however, the Council would adopt the motion which had been brought forward by Professor Walley, namely, to examine the students orally and theoretically first of all, and afterwards to admit them to a practical examination, taking care that no man entered the profession without a thorough practical knowledge, and if he passed that examination to give him his diploma, whether

he had been with a veterinary surgeon or not; but if he failed, then to tell him to go either to a college or to a veterinary surgeon to obtain his practical knowledge in any way he pleased, and then come back. If that proceeding were adopted instead of this Supplementary Charter, then all the feeling of irritation between the schools and the College would be done away with, and they would work together harmoniously for the general advancement of the profession. The schools had supported the Royal College in all its reforms during the last few years, but they did feel now that the Council was going too far, and in fact they would do all that they could to prevent the passage of the pupilage clause. Speaking from his own experience, the men who had served a pupilage with a veterinary surgeon were generally the very worst students that came to a college. They came with habits and ideas formed, and had always to unlearn very much before they could begin to learn, and he generally found they were the very worst students. With these few remarks he wished to enter his protest against the pupilage clause.

*Professor Walley* said the great mistake made by practitioners was that they did not want their pupils to know anything about practical matters. For his own part, and he believed other teachers were in the same position, he would never persuade a man not to learn practical matters. What they wanted simply was to avoid the rock upon which they were about to split, of passing a compulsory pupilage clause. His advice to students was to see as much practice as they possibly could, and make what arrangements they could for themselves with practitioners before obtaining their diploma. Some of them had seen practice for several years before coming to College. Though he would rather have them fresh and learn something of theory, and get into habits of study before going to see any practice, he agreed that they should see practice before obtaining their diploma; but he objected to this compulsory pupilage.

*Mr. Helmore* was very much surprised to hear the professors say that the man who had served his apprenticeship was the worst pupil. His own belief was that whatever a man had seen in the way of general practice must be beneficial to him in commencing the practice of his profession; it would give him that confidence which, of course, employers of veterinary surgeons would very soon discover, for they were very good judges as to whether a veterinary surgeon knew his business. Looking, however, to what they had heard as to heartburning that had been caused between the Council and the colleges, he thought they might fairly ask that the Council for the present would suspend the idea of getting this Supplementary Charter, and not endeavour to enforce it against the will of the professors, who had worked harmoniously with them for several years. He hoped that the point would be conceded.

*General Sir Frederick Fitzwygram* said he was thoroughly opposed to the pupilage clause. It was the business of the

schools to educate their pupils properly, and it was the business of the Council to see that the schools did properly educate their pupils, but not to undertake the work of the schools. He had always contended that the schools ought to give a thorough practical instruction, and he saw no difficulty in their so doing. He was sure that if they opened the question of pupilage to the thousand men who had just been registered, they would place their pupils in a very disadvantageous position. He would second the amendment that the report be adopted less the pupilage clause.

The *President* said, with reference to Supplemental Charter, they had only heard one side of the story. For the last hour the opponents of that charter had been fighting a shadow. The Council had not imposed pupilage; they simply meant to ask for power if necessary to impose pupilage, and he thought that the profession should have the power to carry out the great object of furnishing practitioners to the public, and guaranteeing that they were competent men. All that was done in the Supplemental Charter was to ask for that power. The Council had not decided to impose pupilage. The Council was elected by the profession, and if the profession had no confidence in those whom they elected, they had better abolish the Council altogether. The Council, he thought, must be the best judges of what was necessary for the profession. The schools were largely represented upon it—every matter brought forward was thoroughly discussed; therefore, if the profession elected the best men they could find to serve upon the Council, and if the Council decided that it was necessary for the welfare of the profession, and the protection of the public, that a period of pupilage should be imposed, then he would say give the Council that power—that was all they asked for in the Supplementary Charter. He thought that on professional matters they ought to be governed by the majority of the profession, and believed it was derogatory to the position of the Council, and most damaging to the interests of the profession, that an insignificant minority should try to overrule the conclusions of the majority. His opinion was that whatever the majority of the Council arrived at should be carried out. Three petitions had been presented against the charter—two from Edinburgh and one from Glasgow. With the Glasgow petition no one could find fault, and of the Edinburgh petitions one came from the Highland Society and one from the Town Council. In those petitions he found an objection against pupilage to this effect—that it would in all probability have a pernicious influence on the morals of the students. When such a slanderous aspersion was cast upon members of their profession it was really time to protest. Those two public bodies in Edinburgh had been impressed with the idea that a practitioner, a member of the Royal College of Veterinary Surgeons, was not a proper man to entrust a young gentleman to, simply because he would not look after or would injure the morals of his pupil; and that, he repeated,

was a slander on the profession. When he first saw those petitions he must confess his blood boiled with indignation, for a more unfounded aspersion upon a body of professional men could scarcely be made; and if those corporations had inserted these slanders at the instance of members of their own profession, then he thought serious notice should be taken of it. If the Council were satisfied that the graduates of the Royal College were competent to practise their profession, then the pupilage would be unnecessary; but he very much doubted whether the necessary practical knowledge could be obtained at the schools. Almost every week he heard that young men going to practise in the country were found deficient in the knowledge of the diseases and the manipulation of cattle and sheep. And when that deficiency was confessed by a school which recently had made great advances what could they expect from other schools which had not the same advantages? With regard to the increase in the fees, twenty guineas was stated as the maximum, but it was nowhere stated that that maximum would be imposed. In 1844, when the fees were fixed at ten guineas, there was only one examination; now there were three, and the number of Examiners and expenses of examinations were very greatly increased. Besides that, the Royal College had to protect the practitioners in the pursuit of their profession, and the graduate must pay for that protection, and that could only be provided by increasing the fees. The Royal College must also have funds to meet its always growing expenses, and there was no way of getting them except from the graduates. The case was exactly the same in the medical profession. With regard to the building, he could assure Mr. Mayer that no chance would be lost in pushing forward the claims of the Royal College, so far as assistance from the Government was concerned. They were entitled to some assistance, and he was in hopes that they would obtain it. In the mean time he thought they had sufficient funds to enable them to look forward to a very early realisation of their wishes, and at any rate to make a start in the matter of a building. The programme of general education examinations was elementary in the last degree, but still it was a commencement, and it was in the hands of the Council to increase the standard as occasion might require. He thought the profession ought to be congratulated on that step, for it was a step in advance to be able to say that the Royal College had taken the matter of general education into its hands, and that in a very short time they would be able to say that their standard of requirement was as high as that of any other professional body. With regard to Examiners, he believed that if they could not find examiners in their own ranks they were not worthy to teach. He thought they had made too much of specialists, for he believed that a practitioner was far better able to test the knowledge that students should possess with regard to the practice of veterinary medicine than any specialists, who had seldom, if ever, studied the pathology or

physiology of domesticated animals. With reference to the question of affidavits from members of the Royal College, it should be mentioned that the Council had the greatest difficulty in finding what was right and what was wrong. The majority of the protests that came in were founded upon hearsay evidence. After the existing practitioner had taken an affidavit they could not merely set hearsay evidence against that affidavit. They required oath for oath if possible, and in every case the members of the Royal College had an advantage when it was possible to give it them. The remedy was in their own hands, and he hoped that gentlemen would not be backward, if they found any such cases, to report them to the Council.

*Professor Walley* said that he was present when both the petitions to which the President had referred were discussed, and, so far as he knew, they contained nothing with reference to the morality or immorality of students. If such a question had been introduced he could only express his sorrow, for it certainly had not been introduced with his consent.

*Professor Williams* said he was present at the meeting of the Highland Society, with Professor McCall and Professor Walley, and the question of morality was never introduced to them in any shape or form. He would ask those who stated that there was no practical teaching at the colleges to make themselves better acquainted with their inner working, and then he was sure they would not make such strong assertions as they had heard that day.

The amendment—"That the report be adopted with the exception of that portion which refers to the Supplementary Charter" was then put to the meeting and lost, twenty-one voting in its favour and twenty-six against.

The resolution for the adoption of the report was then put and carried, thirty voting in its favour and sixteen against.

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## ELECTION ON COUNCIL—Letter from Mr. Whittle.

Worsley; *May 14th*, 1883.

Gentlemen,—Permit me through the medium of your valuable journal to cordially thank my professional brethren for again electing me to the Council of the Royal College of Veterinary Surgeons. In soliciting their support I made known my opinions regarding the more important topics relating to the welfare of our profession, and therefore conclude, from the number of votes recorded in my favour, that those views were approved by a considerable portion of our ranks. In again thanking my friends, believe me that I appreciate the honour of my re-election as one of the highest a lover of his profession can aspire to.

Yours, &c.

*To the Editors of the 'Veterinarian.'*

## CENTRAL VETERINARY MEDICAL SOCIETY.

At the meeting of the above Society on April 19th, Mr. Sheather's essay on "Contraction of the Foot" was the subject of discussion. Mr. J. Woodger occupied the chair.

The other Fellows present were Messrs. H. K. Shaw, J. Rowe, J. Broad, Arthur Broad, C. Sheather, F. G. Samson, W. Hunting, A. Broad, W. Roots, A. B. Daniel, J. Hall Brown, and G. R. Dudgeon.

*Mr. A. Broad* asked the essayist whether he would not ascribe the greater number of cases of foot contraction to navicular pain. He was well aware that contraction followed resting of the limb, but had not noted its occurrence from simple inactivity without pain.

After *Mr. Woodger* had remarked upon the absence from the essay of any reference to navicular disease, Mr. Sheather said he had purposely omitted it, thinking that subject, if discussed, should be brought forward separately and fully entered into. At present he wished to consider primary contraction; the general idea was that contraction was a sequence of navicular disease, and did not itself cause lameness; he thought, on the contrary, that it did so, and that frequently, without the presence of any disease at present recognised, we had cases of contraction of foot with consequent lameness.

*Mr. Samson*, alluding to the possibility of one foot being congenitally smaller than the others, said he had under his notice at the present time a five-year-old horse with one fore foot disproportionately small; the disparity was first taken notice of when the colt was seven months old. The heels were very upright, and the foot strong; there was no lameness, yet biniodide of mercury blisters had been applied under the idea that there was disease, and he was of opinion that lameness would result if the horse were worked upon the London streets and roads. His general idea of the proper treatment for contracted feet was cold-water application, standing on flat pavement, and shoeing with short tips.

*Mr. Hunting*, from his recollection of the essay, gathered that it was laid down that the causes of this defect were many. It was, he said, desirable to distinguish the pathological causes from the physiological. Before a horse was shod the feet were much wider. Although we should not, therefore, put down shoeing as the cause direct of contraction, yet indirectly it was a cause, through the artificial conditions in which it compelled the foot to be placed. Another predisposing point alluded to by the essayist was the dryness and heat of the stable; dryness does favour contraction. We had only, he said, to compare the expanded hoofs of horses reared in moist climates with the upright narrow feet peculiar to horses in hot, dry countries. He

looked upon a disproportionate smallness of foot as due to disease. If both fore feet were narrow he should not consider it unsoundness, provided that the hind feet were similar in shape, but as one means of determining the significance of a contracted foot he would pare the hoof and observe the course and direction of the horn fibres. He did not believe that contraction preceded and caused disease of the navicular joint, and as evidence that contraction was due solely to resting the limb, he stated that, after unnerving for navicular lameness, the foot gradually assumed a more natural shape.

*Mr. Rowe* had noticed that feet sometimes appeared to contract from neglect of the farrier to lower the wall at the toe, which then gradually became elongated, making the foot long and blocky and bringing the heels closer together. He had wondered what effect the gutta-percha pads now so much in use would have upon horses' feet, and gave some results of his experience of different kinds of patents of this sort. He advocated "springing the heels" as a means of obviating contraction.

*Mr. Shaw* agreed with the essayist that the deformity in question was often caused by horses remaining idle. He deprecated the use of pads, and stated that in his opinion the abuse of cutting and rasping the foot on the part of the shoeing-smith greatly predisposed to contraction.

*Mr. Woodger* said that in the main he also agreed with Mr. Sheather. He did not believe that horses were ever foaled with one foot smaller than the other. He knew two colts which it was supposed had this deformity at birth; but it was not so. They had been turned to grass quickly after being weaned, the ground was sloping, and while feeding they acquired a habit of bending the off leg invariably, and in time the off foot of each colt became much contracted; the flexor tendons also suffered from the same defect, and at last incurable lameness supervened. He said it was his opinion that contraction might follow any disease which caused resting of the leg.

*Mr. Sheather*, in allusion to points touched upon, said that he found that the feet affected in the navicular joint were not contracted to begin with; were on the contrary good round feet, but became altered in the manner indicated as a result of the long-continued resting during treatment. He also stated that a horse, if resting in the stable for an inordinate time, gets his feet contracted, or, as it were, in a state of atrophy, and that lameness is induced when he is put to work, the hoofs not being enabled to expand in response to the pressure from above upon the parts within. In comparison with the foot he referred to atrophy and changes of size affecting a muscle, a structure not closely surrounded by an unyielding material. He considered it possible that a foal might have one foot small at birth, but that in many more cases there was some trivial cause overlooked. If when one foot was smaller than the other, it was well-shaped and the horn fibres did not seem twisted, he would consider it

sound. He disapproved of blistering the coronets as a remedy in "contraction," and agreed with the ideal outline of treatment sketched by Mr. Samson, preferring it, he said, to that actually practised in the case he quoted. Though the application of cold water was beneficial, he preferred to alternate hot linseed poultices with the cold douche, the time of application of the latter being much shorter than the time allowed for the poultices. While dilating on the subject of the use of pads of various kinds he instanced a case in which, through the pad being allowed to project too far below the level of the shoe, the amount of pressure upon the sole was so great as to weaken the union of sole and wall. The horse was accidentally killed, and it was found, after one of his feet had been soaked, that without any pressure being used the sole became quite detached from the wall.

*Mr. Woodger* then gave some particulars of a case of ruptured heart in a horse. He said the patient suffered from congestion of the lungs, and, in addition to the pathognomonic symptoms of that malady, he observed an intermittent, irregular pulse, at the rate at first of eighty or ninety beats per minute. Improvement gradually took place, and normal respiration was resumed, but an irregular intermittency of pulse remained, and he advised the owner to part with the horse. This was done, but a day or two after sudden death resulted while the animal was in the stable. The right auricle was found ruptured in two places; there appeared to be no disease of the valves or muscular fibres. He attributed the mortal injury to increase of pressure upon the auricular wall in consequence of pulmonary obstruction.

*Mr. Hunting* then read the following essay:

## BENT LEGS—THEIR SIGNIFICANCE AND CAUSE.

There are two conditions of the limbs which I include under this term, and to which I wish to draw your attention. Horsemen recognise the one as "over at the knee," the other as "over at the fetlock. In both, the anatomical change is the same, viz. a partial flexion of the joint with no articular disease, and some deviation from their normal relative position of the bones above and below the joint. This condition varies in degree from the slightest deviation from the correct line to a state in which the most striking deformity is produced. It may exist as a permanent alteration in the form of the limb, and it may be merely temporary, gradually and slowly disappearing.

We find "bent legs" in horses of all kinds and ages. Sometimes it is unaccompanied by any disease; usually, however, some part of the limb gives evidence of painful disease, or or it may be merely evidence of the recent existence of a painful disease or injury. The hind legs are comparatively seldom affected, and it is worth while remarking that when they are the accompanying disease is above the deformity, whereas in the

fore legs we usually find any accompanying disease below the bent part. It is not uncommon to find in the hind limb a fetlock "shot over" and a spavin on the hock. It is still more common in a fore limb to find a bent knee and a diseased navicular bone. For convenience I will now disregard the hind limb and apply my remarks merely to what are termed bent knees. Sometimes only one leg is affected, sometimes both. When one only is affected it is almost positive evidence of the existence of disease in some other part of the leg, and that of a painful nature and not of recent origin.

It has been said that foals have been born with bent knees. I never saw one; in fact, I never saw bent knees in a horse that had not done work or had not met with an accident. Concerning, then, the congenital origin of bent knees, I can only say that as animals may be foaled with five legs I am not prepared to deny that they may be born with bent legs.

No cases are more common in the horse than accidents and diseases of the foot, accompanied by great pain. When they are of short duration we seldom notice any "going forward at the knee," either as as an accompaniment or as a sequel. When, however, foot cases are protracted, and painful lameness of even slight intensity exists, bent knees are a common sequelæ. Few, if any, old cases of navicular disease can be found without bent knees. Protracted cases of sandcrack lead to the same condition, as also do cases of corns and other injuries. The cure of the corns and sandcracks is always followed by improvement in the position of the knee, and usually, if care be taken, by complete restoration of the position of the limb. In cases of navicular disease every one must have noticed the remarkable manner in which bent knees improve or disappear after neurotomy.

The worst case of bent knee I ever saw was in a grey horse that had trodden upon a large nail, inflicting very severe injury to the foot.

For months no weight was placed by the animal on the injured limb. When the wound in the foot had healed and all pain ceased it was found that the knee could not be straightened. Complete flexion could be made, and no disease of the joint detected. The only explanation of the condition was that the flexor tendons had contracted so as to adapt themselves to the new angle formed by the metacarpal and radial bones. The treatment adopted was to turn the horse out to grass with a shoe on the foot of the deformed leg, supplemented by a projection at the toe having an upward curve. The shoe was periodically removed and the curved projection adjusted to the action of the animal. In the course of a few months the leg was nearly

as straight as the other, and quite as sound. The effect of the treatment could only be to put a strain on the flexor tendons during progression, especially at the moment during which the toe revolved on the ground. To this gradual and frequent stretching the tendons yielded.

It may be stated as an anatomical truism that the length of a tendon is exactly proportioned to the distance between its place of insertion and its point of origin, and it is an eqnally true physiological fact that the length of a tendon varies as that distance varies. Just as a bow can only act when its string is at tension just so a muscle can only contract effectively when its tendon is "taut." So soon as by an alteration in the position or angle of two bones a tendon beoomes relaxed so soon nature commences to contract it to its new conditions. Were this not so, a very slight deviation in the relative position of two bones would render useless all the muscles attached to them. In the case of the grey horse I have just referred to the flexor muscles were able to flex the limb as usual, but had not their tendons contracted the action of the muscles would simply have been expended upon a relaxed tendon, and their power never have been transmitted to the bones.

This contraction or shrinking of a tendon is a passive and healthy action; it is a physiological alteration, not a pathological change. It is a secondary condition dependent upon some previous change, and should suggest our looking for some primary active cause which may require professional treatment.

Anything which causes a horse to rest his leg with the knee bent must relax the flexor tendons. If the position be continued a gradual and passive contraction of the tendons follows, and a more or less permanent alteration of the line of the limb takes place. Pain in the feet in all its varying degrees of intensity acts in this way; to relieve the organ the heel is raised and the knee thrown forward, consequently a relaxation of the flexor tendons results. So general is the connection between foot lameness and bent knees that I venture to say that in 75 per cent. of cases the two coexist. I go further and say that the mere existence of bent knees is of itself *prima facie* evidence of foot lameness.

One of the most interesting and instructive illustrations of this came under my notice not many years since in London. A friend of mine had at that time veterinary charge of a large stud of horses. Two years only had passed since they were purchased—a sound young lot of horses—when it was noticeable that a large number were going over at the knees. Examination showed that about 70 per cent. were bent, many in a most marked manner. My friend reported that the cause was a bad

system of shoeing, and I was afforded an opportunity of testing his opinion. In nearly every case corns either existed or had existed. In many cases corns were present on both heels of both fore feet. In no case could any other cause be detected. Similar horses did similar work in dozens of places, but remained free from bent knees. In only one thing were these horses peculiar—in being shod on a system rigorously carried out, and which must inevitably lead to injury. The system was to lower the heels as much as possible, with a view to frog pressure, to shoe short for fear a shoe was pulled off, and to shoe close because the fine nail holes rendered it necessary. Now, I submit that no three rules could be framed so likely to result in damage to the heels of the foot. Some few of these animals I was enabled to trace after they were sold as uselessly lame and deformed. One very bad case I can refer to as when properly shod becoming again sound and nearly straight on his legs, although continuing to work hard in a laundry van. Just note the sequence in this huge experiment of cause and effect: the practice was over-lower the heels, shoe short, and shoe close; the result corns and bruised heels. The next stage, tender and lame feet, followed by bent knees and contracted tendons. The mischief, however, did not stop here. Work still went on, and the knees became more bent. Not only was the metacarpal bone altered in position, but the pasterns were thrown into the perpendicular, and ringbones appeared in numbers probably never before witnessed in a stud of the same size.

In this case cause and effect seem to me so clear as to leave no room for doubt; but that there may be another explanation is suggested by an incident I have not yet mentioned. When things were at their worst a well-known veterinarian was called in to report upon the stud. After a careful examination his report was written, and contained this remark: "I can see no connection between the bent knees and the shoeing; if the shoeing were to blame, how is it the hind legs are not bent?" I conclude such an opinion must have had some foundation, and as I have up to the present been unable to guess what it was, I submit the riddle to this meeting.

In some bad cases of contracted tendons tenotomy has been performed, and providing adhesions between the tendon and its sheath do not exist, no difficulty is experienced in extending the joint. I mention this merely to remark that ligaments do not apparently contract when they are relaxed by the continuous flexion of a joint. The power of gradually shortening or lengthening tendons seems, then, not to reside in ligaments, and this confirms me in may statement that such property is only possessed to enable muscle to act effectively.

I have said there are cases of bent knees with no apparent disease accompanying them. Such cases I take to be due to excessive work. The defect follows from hard work through precisely the same steps as in other cases. The sequence, I take it, is hard work = tired muscle, relaxed muscle = falling forward of knee; this continued, and we have the gradual contraction of tendon that must follow the altered position of the knee.

How many of such cases have been blistered or fired in the region of the tendons? Will any one say why, when such treatment is adopted, the operator should not be proceeded against for cruelty to animals?

In conclusion, just one word concerning hind legs. Here the the flexion of the joint analogous to the knee does not relax the flexor tendons. When a horse rests a hind leg from weariness or pain, and the flexor tendons are continuously or contantly relaxed, the joint that is thrown forward is the fetlock. Should contraction follow, the pastern bone is straightened and the fetlock thrown forward. We see this condition as the result of sand-crack, sometimes but most commonly in association with spavin. Alteration of the angle formed between the metatarsal bone and the tibia, if it could occur, would not be very noticeable, besides which the hock is so related to the stifle-joint that the angle of one cannot be altered without a similar alteration of the other. The relative position, then, of the metatarsus is more stable than that of the metacarpus, and consequently a "shot fetlock" behind is a more conspicuous deformity than one in front, owing to nearly all the deviation being in the pastern.

ALFRED BROAD, *Hon. Sec.*

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## YORKSHIRE VETERINARY MEDICAL SOCIETY.

THE spring quarterly meeting was held at the Queen's Hotel, Leeds, on Tuesday, the 17th ult., the President, Mr. J. M. Axe, in the chair; the following members were also present, viz. Messrs. M. E. Naylor, Jas. Freeman, T. Greaves, J. S. Carter, J. W. Anderton, B. Smith, Peter Walker, Parlane Walker, J. E. Scrivens, R. L. Robertson, A. W. Briggs, W. F. Greenhalgh, H. Carter, and the Secretary.

Apologies for non-attendance were received from Messrs. Dray, Josh. Freeman, F. Danby, H. Cooper, &c.

The minutes of the previous meeting were read and confirmed.

The *Secretary* proposed, and *Mr. J. Carter* seconded, the election of Mr. Henry Fletcher, M.R.C.V.S., Sheffield. Carried unanimously.

The *Secretary* explained the steps he had taken respecting the

election of members of Council, having joined with the Secretaries of the Liverpool and Lancashire Societies to endeavour to return Prof. Robertson, and Messrs. Whittle and Broughton.

The *Secretary* strongly urged the members to join the National Veterinary Association, but the appeal was not warmly responded to.

*Mr. Naylor* proposed, and *Mr. Freeman* seconded, "That a letter of condolence from the members of this Society, signed by the President and Secretary, be forwarded to the widow and family of the late Mr. Jno. Tatam." Carried unanimously.

The *Secretary* described the symptoms of a case of intense lameness from an injury to the knee, arising from a violent sprain of the ligaments of the joint, or fracture occurring after a sharp gallop upon the turf. The knee was much swollen upon its inner and posterior portion, exceedingly hot and tender to the touch upon the inner and anterior surface; the mare was unable to place any weight upon the inside of the foot, and flexion of the joint caused severe pain; the outside of the knee and leg was curved outwards, presenting somewhat the appearance of bowed knee in the human subject. After two months' treatment, rest in the slings, and the usual antiphlogistic treatment, &c., the mare was killed, when a complete longitudinal fracture of the scaphoid in its centre was found; also that a small portion of the upper and anterior portion of the os magnum was broken off. There existed of course a considerable amount of porcillanous deposit studding the anterior articulations of the bones of the knee. The mare had not taken any leaps or been kicked, therefore the fracture must have been caused by violent concussion.

*Mr. Jas. Freeman* related a case of fracture of the trapezium arising from external violence; complete recovery ensued. He also described a case of fistulous abscess now under treatment, where the sinus extended from the inferior third of the neck backwards to the posterior surface of the scapula and the trunk.

*Mr. Carter* narrated the symptoms of a severe case of lameness under his care; the horse was thrown down attached to a van; when got up he was found to be exceedingly lame, stood with the fore leg advanced, and the fetlock touching the ground. No swelling existed nor was any external injury in the region of the shoulder or arm visible.

*Mr. Peter Walker* described the symptoms of a case of fractured humerus. The horse was rather lame for a few days, but had apparently recovered, when upon being driven he stumbled, reared, came down, and was dead lame; displacement of the fractured ends of the bone had occurred.

*Mr. Walker* also related a case of recurring lameness, all four legs being affected at different periods; eventually enlargement of the superior maxillary bones took place, and the disease osteo-porosis became developed.

*Mr. B. Smith* related a unique case of fracture of the symphysis pubes in a cow, in which after calving the animal was able

to stand up erect, the anterior spines of the ilium approximating within about eight inches.

*Mr. Anderton* and other members had seen numerous cases of fractured pubes, but never knew one able to maintain the standing position.

*Mr. Freeman* related a case of hæmorrhage in utero in a cow. The beast was slaughtered and in his opinion the flesh was quite suitable for consumption as human food, but the magistrates refused to pass the carcase, their decision being based upon the opinion of a medical man.

A lengthy discussion ensued, introduced by Mr. Briggs, as to whether the flesh of newly calved cows when killed within eight to twelve hours after calving, not labouring under an inflammatory attack, were available for human consumption. The members present with one exception agreed the flesh of these cows were fitted for human food.

*Mr. Greaves* said that in 1842 the soldiers at the Manchester Barracks lived upon beef affected more or less with pleuro-pneumonia for nearly twelve months, the health of the men being exceedingly good, notwithstanding the opinion of medical gentlemen that bad results would occur.

*Mr. Briggs* related the latest theory at the Royal Veterinary College as to the causes producing an attack of parturient apoplexy.

The *President* gave the symptoms of an outbreak of "pink-eye" in a stud of draught horses at Doncaster; quick irregular pulse, rapid debility, biliary congestion of the visible mucous membrane; temp. 105°; and in some cases enteric symptoms were present, tongue extremely furred.

The *Secretary* doubted whether these cases were "pink-eye" or the old epizootic, but rather severe attacks of gastro-bilious fever.

*Mr. Greaves* had seen cases of "pink-eye" in Manchester. The animals exhibited general febrile symptoms, shuffling gait, and tenderness of the skin in the joints of the extremities, ears cold, pulse 80 or 90, weak, temp. 105°; advised more clothing, friction to the extremities, stimulating medicine, and the animal soon recovered. Gave stimulants, with the application of Lin. Ammon. Comp. to the sides, also hot blankets to the chest, head to the door, &c.

*Mr. Robertson* said he had been very successful in applying stimulants to the chest in the complication attendant upon influenza or "pink-eye."

*Messrs. Greaves* and *Parlane Walker* quoted outbreaks of low fever in horses arising from defective drainage, the disease disappearing after the application of proper sanitary appliances.

## NEW MEMBERS OF THE PROFESSION.

At the several meetings of the Scottish Section of the Court of Examiners of the Royal College of Veterinary Surgeons, held in Edinburgh and Glasgow, on the 18th, 19th, 20th, 21st, 23rd, and 24th April, 1883, the following students passed their *Final* Examination and received the Diploma.

### Edinburgh Old College.

| | | |
|---|---|---|
| Mr. | John Beattie . . . . . | Longside, Aberdeenshire. |
| — | Tom King . . . . . | Ayr, Ayrshire. |
| — | Henry Holroyd . . . . | Blackburn, Lancashire. |
| — | Thos. Cunningham . . . | Dunedin, Otago, New Zealand. |
| — | Henry A. Fulham . . . | Rhyne, Co. Longford, Ireland. |
| * — | K. J. Urquhart . . . . | Newton-le-Willows, Lancashire. |
| — | Bernard Valentine Martin | Knightstown, Navan, Ireland. |
| — | Arthur New . . . . . | Ampthill, Bedfordshire. |
| — | Chas. Scott Smart . . . | Musselburgh. |
| — | Harvie Malcolm Maxwell | Orton, Waterville, Peterborough. |
| — | Alex. Adam Waugh . . . | Newmarket, Cambs. |
| — | Martin Aloysius Brown . | Wexford, Ireland. |
| — | J. Rowland Dykes . . . | Wellingborough, Northants. |
| — | William Hackett . . . . | Pointoy, Folkingham, Lincolnshire. |
| — | Geo. Wm. McArthur . . | Meerut, India. |
| — | Christopher Jones . . . | Mallow, Co. Cork. |

### Edinburgh New College.

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| Mr. | Matthew Horace Hayes . | Junr. Army and Navy Club, St. James' Street, S.W. |
| — | Anthony McCarmick . . | Leeds. |
| — | Arthur A. Stringer . . . | Belfast, Ireland. |
| — | Arthur Plant . . . . . | Bakewell, Derbyshire. |
| — | Harry Young . . . . . | Brighton. |
| — | Alex. B. Forsyth . . . . | Galashiels. |
| — | Wm. Malcolm Lyon . . | Ayr. |
| — | David Hamilton . . . . | Maybole, Ayrshire. |
| — | Richard Bolster . . . . | Tralee, Ireland. |
| — | Fredk. Percy Carter . . | Bradford, Yorks. |
| — | Robt. Ion Hickes . . . | Stockton-on-Tees. |
| — | Wm. H. Wood . . . . | Middleton, Manchester. |
| — | John A, Meredith . . . | Carnbroll, Llanymynech, Montgom. |
| — | Colin Gresty . . . . . | Tattenhall, Cheshire. |
| — | Wm. Richd. Davis . . . | Douglas, Isle of Man. |
| — | John Airth . . . . . | Arbroath. |
| * — | Bernard Austin Clancy . | Dublin. |
| — | Abraham Edwd. Hanson . | Norwood Green, nr. Halifax. |

* Marked thus, passed with *Great Credit.*

### Glasgow College.

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| Mr. Job. Mugh Johnson. . . | Belfast, Ireland. |
| — James Spalding . . . . | Myriside, Blairgowrie. |
| — Alexander Brown . . . | Neilston. |
| — Thos. Greene Sherwood . | Belfast, Ireland. |
| — John Reid . . . . . | Townhead, Beith, Ayrshire. |
| — Alexander Brown . . . | Holytown, Lanarkshire. |
| — John Baxter . . . . . | Overtown, Lanarkshire. |
| — John Holland . . . . . | Dublin. |
| — Henry Tweedley . . . . | Barrhead. |
| — John Francis Hayes . . | Portroe, Co. Tipperary, Ireland. |
| — Tom Marriott . . . . . | Shrewley, nr. Warwick. |
| — James Laithwood . . . | Congleton, Cheshire. |

The following students passed their *Second* examination on the 11th, 12th, 13th, 16th, and 17th of April, 1883:

### Edinburgh Old College.

Mr. C. McEachran.
— W. R. Davison.
— H. C. Fergusson.
— A. S. Kershaw.
— F. Airey.
*— W. Jeeves.
— W. Kent.
— C. Ladds.
— F. Ashley.
— R. Miller.
— R. O. Stewart.
— N. F. Doyle.
— Alexander Wood.

Mr. A. W. Barnes.
— Henry Barrett.
— B. O. Meek.
*— G. Ellison.
— Joseph Barclay.
— James Player.
— R. C. Irving.
— James Jeeves.
— F. Bennett.
*— John Nicholson.
— Thomas Butcher.
*— Charles Cowie.

### Edinburgh New College.

*Mr. M. Carroll.
— A. F. Durkie.
* — T. A. Rudkin.
— C. Dyson.
— J. Richardson.
— J. T. Crosby.
* — J. Borthwick.
— J. J. Ridley.
— W. Berry.
* — W. Lothian.
— S. W. Martin.
— James Purdy.
* — A. Lennox.

Mr. A. Gledhill.
— Jos. Purdy.
— D. Charnock.
— R. Brizell.
— Jos. Forgham.
— J. Malone.
— D. Lyons.
— Jas. Hanbury.
— J. Dixon.
— A. Spruce.
*— A. Conisbee.
†— A. E. Haslam.

* Marked thus, passed with *Great Credit.*
† Marked thus, passed with *Very Great Credit*

Glasgow College.

Mr. Alex. Paton.
*— W. Griff. Jones.
— James Hart.
— Alex. Reed.
*— Andrew Stewart.
— Robert Yates.
— Alex. Murdoch.
*— Robert D. Dove.
*— Finlay Kerr.
*— Wm. McDonald.
— A. W. Makeand.
Mr. Andrew A. Leckie.
— Samuel M. McConechy.
*— Archibald Edgar.
— Richard H. Gilmore.
— John Steel.
*— Robert J. Huston.
— James K. Calderhood.
— Robert Anderson.
— Alex. Cairns Forbes.
— Wm. C. M. Smith.

The following students passed their *First* examination on the 25th April, 1883:

Edinburgh New College.

*Mr. R. Rimmer.
— A. Barrow.
— E. J. Lawson.
* — H. Wilkinson.
— W. Allen.
— Aggio.
Mr. D. Keyes.
— A. McArthur.
— A. Watson.
— A. Chamberlain.
— S. Chambers.

Edinburgh Old College.

Mr. James Neaves.
— A. E. Paley.
Mr D. Graham.
— G. G. McLaren.

Glasgow College.

Mr. Joseph Ward.
— Alexander Marshall.
Mr. William Ward.

* Marked thus, passed with *Great Credit*.

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## GLASGOW VETERINARY COLLEGE.

The winter session of this institution terminated on Friday the 13th inst., and on the 16th, 17th, 23rd, and 24th the oral examinations of the Royal College of Veterinary Surgeons were conducted within the museum of the College. The candidates for diploma were also subjected to a rigid practical examination on horses, cattle, and sheep, selected and brought to the College for that purpose.

The Board of Examiners included—Mr. George Fleming, F.R.C.V.S.; Mr. J. Roalfe Cox, F.R.C.V.S.; Professor Duguid, F.R.C.V.S.; Professor Pritchard, M.R.C.V.S.; Mr. J. Vaughan, F.R.C.V.S., London; Mr. W. A. Taylor, F.R.C.V.S., Manchester; Mr. George A. Banham, F.R.C.V.S., Cambridge; Mr. Finlay Dun, F.R.C.V.S., London; Mr. W. B. Walters, F.R.C.V.S., Army Veterinary Department; and Mr. R. Rutherford, M.R.C.V.S., Edinburgh.

The following gentlemen were also present as *ex officio* mem-

bers:—Principal M'Call, Professors Knox, Cooke, and Macqueen, Glasgow Veterinary College.

The diploma of the Royal College of Veterinary Surgeons was obtained by the following candidates:—Mr. Henry Tweedley, Barrhead; Mr. Job M. Johnson, Belfast; Mr. James Spalding, Blairgowrie; Mr. Alexander Brown, Neilston; Mr. Thomas Greene Sherwood, Belfast; Mr. John Francis Hayes, Portree; Mr. Tom Marriott, Warwick; Mr. James Laithwood, Congleton; Mr. John Reid Beith; Mr. Alex. Brown, Holytown; Mr. John Holland, Dublin; and Mr. John Baxter, Overtown.

Twenty-four students presented themselves for the second professional examination, of which number twenty-one passed, namely:—Messrs. William Macdonald, Campbeltown; R. H. Gilmour, Ballymoney; Samuel M. McConechy, Islay; Archibald Edgar, Port William; Andrew Stewart, Paisley; William G. Jones, Pwllheli, North Wales; Robert Yates, Glasgow; Finlay Kerr, Glasgow; A. H. Mackeand, Port William; A. A. Leckie, Dumfries; Alexander Murdoch, Drogheda; Alexander Reid, Magheramorne, County Antrim; James Hart, Dromara, County Down; R. D. Dove, Dundrum, County Down; William C. M. Smith, Porkhill, County Armagh; Alexander Paton, Troon; Alexander C. Forbes, Glasgow; Robert Anderson, Holytown; James K. Calderwood, Paisley; R. P. Houston, Tynan, County Armagh; and John Steel, Cumnock, Ayrshire.

Four students were also examined for the first professional examination, of whom the following passed:—Messrs. Alexander Marshall, Glasgow; Joseph Ward and William Ward, Manchester.

Medals granted by the Highland and Agricultural Society of Scotland, Professor Allen Thomson, London; Mr. Robert Walker of Lethamhill; and Principal M'Call; and certificates of merit by the College were awarded in the different branches of study as follows:—

*Horse Pathology* (written examination)—Gold medal (Principal M'Call), Alexander Brown, Neilston. Silver medal (Highland and Agricultural Society of Scotland), John P. Hayes. First-class certificates, Messrs. Laithwood and Marriott. Second-class certificates, Messrs. Spalding, Hirst, and Brown.

*Cattle Pathology* (written examination)—Gold medal (Principal M'Call), James Laithwood. Silver medal (Highland and Agricultural Society of Scotland), A. Brown, Neilston. First-class certificates, Messrs. Hayes and Larkin. Second-class certificates, Messrs. Holland, M'Nair, and Frew.

*Practical Examination of Horses as to Soundness, Age, Manipulation, &c.*—Gold medal (Principal M'Call), Tom Marriott.

*Practical Examination of Cattle and Sheep, as to Age, Operations, &c.*—Gold medal (Mr. Robert Walker), Harry Tweedley.

A special prize, consisting of a case of instruments, presented by Mr. Campbell, M.R.C.V.S., Kirkcudbright, for the best essay on "Inflammation," was awarded to Mr. John F. Hayes.

*Histology and Physiology.*—Silver medal (Highland and Agricultural Society of Scotland), Mr. Andrew Stewart. First-class certificate, Mr. Jones. Second-class certificates, Messrs. Edgar and Dove.

*Anatomy* (*Special and Comparative*).—Silver medal (Highland and Agricultural Society of Scotland), Mr. Andrew Stewart. First-class certificates, Messrs Houston, Dove, and Jones. Second-class certificates, Messrs. M'Donald, Anderson, Kerr, Mackeand, and Edgar.

*Best Oral Examination on Anatomy, Physiology, and Histology.*—Gold medal (Professor Allen Thomson), Mr. Andrew Stewart.

At the close of the examinations the President of the Royal College of Veterinary Surgeons—Mr. George Fleming—intimated that Messrs. Jones, Stewart, Dove, Kerr, Macdonald, Edgar, and Houston had passed with great credit.

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## EDINBURGH NEW VETERINARY COLLEGE.

At the present time, when so much attention is being directed to the necessity for increased endowments for the universities, it is worthy of notice that the veterinary profession is making great headway in the city without any Government support. It was a matter of regret that in 1873 the arrangements for veterinary teaching in Edinburgh were disturbed, but the course which Mr Williams then took has proved a very successful one. The old Gayfield House was acquired for a college, and in 1873 sixty-one students were enrolled. In 1876 the number had increased to 73, three years afterwards there were 104, and during the last winter session 154 were enrolled. With the view of making the teaching staff thoroughly proficient an extra Chair for Natural History was added two years ago—the first that has been established in connection with a veterinary college in Great Britain. The present building having proved too small for the increased number of students, Principal Williams determined to proceed with the erection of a new college, and ground was acquired in Leith Walk for this purpose, the site being that formerly occupied by the Tramway Company, and some other old buildings which have yet to be demolished. The structure, which will face the main street, will be a large building four storeys in height. On the ground flat are three shops. On the second flat will be accommodated the resident veterinary surgeon and others in charge of the college. The third and fourth flats it is intened to let—one of them it is proposed to make a clubhouse for students. Passing through the entrance a causewayed road, fifty yards long, will be formed right through the yard to the back gate, which communicates with Montgomery Street. To the rear of the shops in the main building are a public office, con-

sulting room, and surgery. The remaining parts of the building form three parts of a square, and the erections are two storeys in height. Along the north side on the ground floor are seventeen boxes for horses, an apartment specially fitted up for bathing the horses, and at the end there is a cow byre. At the east end is a large forge, where a dozen horses may be shod at a time. There is also a chopping and boiler house. The entrance from Montgomery Place divides the *post-mortem* room from the forge, while along the south side of the square are more boxes and kennels, all heated with hot-water pipes. Over this part of the building are two laboratories with retiring rooms; one of them is fifty feet in length, and is lighted by side windows, as well as from the roof. At the north-east corner on the same floor is a dissecting-room, which will be fitted with all the latest improvements, and is admirably lighted. Over the forge is a large reading-room for students, and in the north-east corner a small class-room, capable of accommodating one hundred students. Next to this on the north side are the bone room, the museum with gallery around, and adjoining a retiring room for the professor, while at the end is the largest lecture hall, capable of holding 250 students. Through all these rooms will be conducted hot-water pipes. A gallery is carried along the north side, from which the horses trotted in the square can be seen. The sanitary and ventilating arrangments will be on the most approved principle. The college and buildings cover a large area, and will cost over £10,000, which will be borne by Principal Williams. The works are expected to be finished for the opening of classes in October.—*Edinburgh Daily Review.*

## Veterinary Jurisprudence.

### REMOVING CATTLE AFFECTED WITH PLEURO-PNEUMONIA.

At the Bradford West Riding Court, on May 19th, Charles Bentley, farmer, of Bierley Lane, appeared to answer two summonses charging him with offences under the Contagious Diseases (Animals) Act in not giving due notice to the local authorities of the presence of pleuro-pneumonia among his cattle, and removing a cow suffering from the disease. Mr. Wilson appeared for the defendant.

*Superintendent Symonds* stated that at the commencement of the past winter the defendant had twenty-two head of cattle; at the present time he has ten. On the 27th April, however, the carcases of two cows that had died, and a live cow that was suffering from disease were being removed to a knacker's yard at Tyersal, when the third animal had to be slaughtered. No

information was given to the police; but Police-constable Sutcliffe, having heard something of the matter, called on the defendant, but his answers were not at all satisfactory. Subsequently he (Mr. Symonds), in company with Mr. Collins, the veterinary inspector for the East Morley division went to the defendant's place, and found one cow dead, and two others suffering from pleuro-pneumonia. Mr. Carter, the chief veterinary inspector for the West Riding, was also called in, and he having certified as to the prevalence of the disease, the two cows in question were slaughtered. On Tuesday last three more that were found to be suffering had also to be slaughtered.

*Police-constable Sutcliffe* was called, and stated that he was stationed about half a mile from the defendant's premises, but the defendant had never informed him of the presence of pleuro-pneumonia. On going to the premises on the 27th ult., the defendant, in reply to his questions as to his cattle being diseased, made some evasive remarks about their having been over-fed. Upon mention being made of the cow that had to be killed in Bierley Lane, the defendant said he did not think there was any disease in it, but simply that it had been over-fed and over-milked. The defendant said the "doctor" had been there that morning, and mentioned that one of the cows was not quite right in the lungs.

After further evidence, in answer to the bench, Superintendent Symonds said that the defendant must have lost through the disease attacking his cows not less than £300.

*Colonel Pollard* remarked that that was a very serious matter for the defendant; but this disease must be stamped out, or, if not, very disastrous results would accrue to the country generally. The defendant had simply been led astray in the matter, and he had lost a large sum of money. But for that fact the bench would have had no hesitation in inflicting the full penalty of £20 in each case. Had he reported the matter to the police, and conformed to the law, he would have been able to recover from the county three-fourths of the value of each beast he lost by the disease. The bench had decided to impose a fine of only £5, including costs.

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## MAJOR-GENERAL SIR F. FITZWYGRAM'S PRIZES.

ALDERSHOT, *May* 21*st*.

MAJOR-GENERAL SIR F. FITZWYGRAM, presents his compliments to the Editors of the *Veterinarian*, and encloses copies of the questions set by the Examiners Messrs. Harpley and Duguid for his prizes.

### MORBID ANATOMY.

1. What is the average weight of the heart of the horse in health? Describe the changes found in this organ after death in cases of hypertrophy, and also in cases of dilatation.

2. Describe the formation of a blood-clot within an artery in the living animal, and state what conditions or diseases may give rise to its formation.

3. Describe the changes which occur in the liver in cases of enlargement and softening of that gland, terminating in rupture.

## PATHOLOGY.

1. State briefly your views of the nature of influenza and how it is propagated; describe the symptoms, treatment you would adopt, and the *post-mortem* appearances in fatal cases.

2. Describe the process of acute inflammation in mucous and serous membranes, taking for examples bronchial mucous membranes and pleuræ.

3. Mention the morbid products which may be found in the urine of our different domestic animals; state how each may be distinguished, and what diagnostic inferences may be deducted from their presence.

4. How is the disease known as glanders propagated; describe the symptoms, and *post-mortem* appearances, and state after what period of quarantine you would consider it safe to allow a suspected animal to mix with healthy horses.

5. What are the forms of anthrax met with in this country; describe the causes and the measures to be adopted for the extinction of the disease.

## PHYSIOLOGY.

1. Describe the changes which take place in the food, in the mouth, stomach and small intestines.

2. Describe the process of absorption (*a*) from the intestines (*b*) from the other organs and tissues of the body, and state what changes chyle and lymph undergo as they pass through the glands, previous to entering the general circulation.

3. Name the channels by which waste products are eliminated from the system, and state by which, and in what form, nitrogenous substances are excreted.

4. How is animal heat produced; state the normal temperature of our different domestic animals.

5. What is meant by reflex action; give examples, and mention the course by which the afferent and efferent impulses are conveyed.

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# VETERINARY INSPECTORS.

Gentlemen,—A great grievance of many country veterinary surgeons lies in the fact of unqualified practitioners being employed as Veterinary Inspectors. If you will kindly insert this in the *Veterinarian*, perhaps some of our profession, who have influence with the Privy Council, might state our position and hold us out some hope of relief.—I remain, faithfully yours,

An Humiliated Vet.

*To the Editors of the 'Veterinarian.'*

# THE FLEMING TESTIMONIAL.

At the conclusion of the annual meeting on May 7th Mr. T. Greaves, on behalf of the profession, presented this testimonial, which had been subscribed for by members in nearly every part of the world, to the President of the Royal College of Veterinary Surgeons, Mr. George Fleming, in the following address :

Dear and respected Sir,—I rise, sir, to perform a most pleasing duty. I assure you it is an especial gratification to me that it should have fallen to my lot to be the medium of expressing to you the heartfelt and cordial sentiments of the members of a numerous and noble profession. I hold, sir, that no loftier or more dignified position can be occupied by man than to be entrusted to perform the delicate and important duty of adequately expressing the true sense which animates its members for the distinguished services you have rendered the veterinary profession.

We recognise in you, sir, one who has consecrated all his life, all his energies, and all his means, for the advancement of our profession. You have the power of intense application, and have from childhood been filling the cells of your brain with useful knowledge. Your earnest, sagacious, and unwearied efforts to raise our profession, coupled with your zeal and enthusiasm, prompted you to do something worthy of your faculties. Methinks I hear you say :

"The moments fly on lightning's wings,
And life's uncertain too;
We've none to waste on foolish things;
There's work enough to do."

And now, through long and indomitable energy, having achieved such great results, your mind, warm with exalted ideas, must experience a rapture in retrospect, an undefinable tender pleasure in looking back on duties performed, with the assurance that now our profession has a great future before it.

This is the second time that I have had the great honour of presenting you with a testimonial from the veterinary profession, and I am proud to know that you possess the continued confidence of your professional brethren, the feeling of obligation to you, and sincere esteem in which you are held, is deeper and deeper.

The idea of this testimonial emanated from our old friend, Mr. John Bean Martin, of Rochester. I found that his sentiments were entirely in unison with my own upon this point. On making extensive inquiries I also found the same anxious desire existed universally in the breast of every one I conversed with, and that it was only waiting for an opportunity to develop itself.

And now, sir, I am proud to present you with a token of gratitude from members not only of Great Britain and Ireland, but also from America, the United States and Canada, India, Africa, and Australia, for the distinguished services and long-continued efforts you have made to advance and elevate our common profession.

One of these portraits we present to you, and ask your acceptance ; the other (the full length one), we present to the Royal College of Veterinary Surgeons. It will be a companion picture to the one presented to Major-General Sir Frederick Fitzwygram twelve months ago ; they

are twin giants in our profession. Our children and children's children will look upon them with a feeling of pride and veneration, and will bless God they had lived, and in their day and generation had done such good work for us. Yes, generations will gaze upon that grand spectacle long after you are both removed from amongst us; they will know that you have done noble services, and left an imperishable name, that you stimulated the minds of men with sublimer and more exalted thoughts of their profession and of duty, enriching the world with your keen observation, and giving to life nobler aspirations.

We also beg your acceptance of a further present—two pieces of silver plate, one a centre-piece, and the other a tray of the value of 200 guineas; and it only now remains for me to say, that we trust and pray that you, your wife, and family, will have vouchsafed to you all health, long life, and every comfort, to enable you to enjoy these presents, which are freely given, out of the bounty of 310 members of a profession, in which we look upon you as one of its brightest ornaments.

Upon each portrait and upon each piece of silver is affixed the following inscription:

"*The Royal College of Veterinary Surgeons.*

"Presented by its Members to GEORGE FLEMING, Esq., F.R.C.V.S., LL.D., President 1880-1, 1881-2, 1882-3,

as a token of sincere esteem and gratitude, for his many distinguished services in veterinary literature, and in the obtaining of the Veterinary Surgeons Act of Parliament, 1881, by which the social status of the profession has been greatly elevated, May 7th, 1883.

"THOMAS GREAVES, Knott Mill, Manchester, *Chairman*,
"HY. JOSEPH CARTWRIGHT, Wolverhampton, *Treasurer*,
"JOHN BEAN MARTIN, Rochester, *Hon. Secretary*.

Mr. Greaves further stated, after paying all the expenses that had been incurred, the Committee found a sum of £32 remained in hand. He proposed, and the Committee at once agreed, that £30 should be invested in a diamond ring, and presented in the name of the veterinary profession to Mrs. Fleming. He was happy to say that that morning Mrs. Fleming selected a ring out of a large number, and now with very great pleasure I present it to Mrs. Fleming by her husband. (Applause.)

The *President*, who was most cordially received, said it was scarcely possible for him to state in words the deep sense of pride with which he accepted this evidence of their bounty and gratitude. It had been said that out of the fulness of the heart the mouth speaketh; but this in his case was not a correct assertion, as he found that in proportion as the heart was full so the mouth failed in expressing what the speaker felt. Their history was to some extent his own history; he was one of themselves. He had passed through every grade, commencing at the bottom, and rising as well as he possibly could to the top, and therefore he could speak to them as one who had toiled like themselves. They were cognisant of his history, now almost a public one. From his early days he had been deeply impressed with the necessity of promoting veterinary science in these kingdoms and in English-speaking countries. When he was first ushered into public life as a qualified member of the profession he felt very strongly that their position was very far from what it should be; and commencing life under certain disadvantages, he had very much to do in order to start on equal terms with others who were working in the same direction, and had already done good work. Nevertheless, he looked back to those struggling days with feelings of the greatest pride and satisfaction, because he found that the more he attempted to teach himself, the better he was

taught, and the better able to apply that which he acquired. The position of the profession at that time was known to them all. For very many years they were not looked upon as members of a profession which could hold its own in society; and at the time of the outbreak of the cattle plague in 1865 they received an amount of abuse and defamation which perhaps no other profession ever had to submit to. In the columns of the leading newspapers they were denounced as "ignorant, illiterate, and brutal;" and perhaps it was as well that those words were written, because without such stimulus he did not think he should have worked so hard. From that time he made it the object of his life to prove, so far as an individual could, that they were neither illiterate, unscientific, nor brutal, and the profession had now, he felt, recognised that he had done his duty in that direction. They had declared it, and he felt that no higher reward could be bestowed upon any one than that which they had accorded him. No men were better judges of a man's qualities than those in the same position as himself, and to receive the substantial, noble recognition which they had made was to him far higher evidence of merit and a source of greater pride than any other distinction which could be conferred upon him. The severest criticism which a man could expect was that which was generally made him by his colleagues, and if he had undergone this so satisfactorily as to merit such abundant recognition now it would be a life-long pleasure to be reminded of it in the tokens which they had asked him to receive.

He had toiled for long years, by night and by day, to promote the instruction, the elevation, and the welfare of the veterinary profession, and at sacrifices and risks which they could never be aware of. His most strenuous efforts had been exercised towards maintaining the unity of the profession, so often menaced, and now secured by the Veterinary Surgeons Act; while nothing was left undone to demonstrate to the public the large measure of utility and humanity which appertained to their calling. He gloried in the knowledge that he possessed the friendship, confidence, and esteem of every member of the profession whose friendship, confidence, and esteem were worth possessing, and that alone was worth living for and striving to obtain. Twice in four years the profession had given most unprecedented evidence of its appreciation of his disinterested labours, and no greater incentive could be held out to future workers like himself than such testimony. To the gentlemen of the Committee and to all those who had aided them in bringing such a flattering record of their opinions to this happy conclusion, he could but say thanks, thanks, and repeated thanks. The memory of their goodness would never be effaced from his mind, and though Mr. Greaves had alluded to him in terms far too eulogistic, yet this was only an evidence of the kindly spirit with which they had looked upon all he had, through the help of Providence, been able to achieve. If he had been able to accomplish much, this was due not only to robust health and a firm determination to overcome every obstacle, but to the assistance, loyalty, and zeal of those who aided and encouraged him. He did not know that he could add more; it was difficult, indeed, to speak of oneself, but he could assure them that so long as he lived he should do his utmost to promote the welfare of the veterinary profession, not only in these kingdoms, but throughout the world. (Loud applause.)

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| Moir, C. | 1 | 1 | 0 |
| Mulvey, W. J. | 2 | 2 | 0 |
| Naylor, M. E. | 1 | 1 | 0 |
| Nunn, J. A., A.V.D. | 2 | 2 | 0 |
| Nuttall, Edward | 1 | 1 | 0 |
| Ontario Veterinary Association | 5 | 1 | 0 |
| Olver, F. | 1 | 1 | 0 |
| Oliphant, G. A., A.V.D. | 2 | 2 | 0 |
| Oliver, G. A. A., A.V.D. | 2 | 2 | 0 |
| Over, A. | 1 | 1 | 0 |
| Owles, A. J., A.V.D. | 1 | 1 | 0 |
| Olver, H. | 2 | 2 | 0 |

| | £ | s. | d. |
|---|---|---|---|
| Paradise, H. | 1 | 1 | 0 |
| Pallin, D. C., A.V.D. | 1 | 1 | 0 |
| Pallin, S. L., A.V.D. | 5 | 0 | 0 |
| Peele, H. | 1 | 1 | 0 |
| Perrins, H. | 2 | 2 | 0 |
| Pearce, J. H. | 0 | 10 | 0 |
| Powell, B. A. W., A.V.D. | 1 | 0 | 0 |
| Potts, L. | 0 | 10 | 6 |
| Paterson, R. | 1 | 1 | 0 |
| Phillips, C., A.V.D. | 1 | 0 | 0 |
| Philips, J. J., A.V.D. | 1 | 0 | 0 |
| Price, E. | 1 | 1 | 0 |
| Preston, James | 1 | 1 | 0 |
| Queripel, A. E., A.V.D. | 2 | 2 | 0 |
| Reilly, Jas., A.V.D. | 1 | 1 | 0 |
| Reilly, C. G. H., A.V.D. | 1 | 1 | 0 |
| Redford and Son | 1 | 1 | 0 |
| Ritchie, Jas. | 1 | 1 | 0 |
| Ringe, R. H., A.V.D. | 2 | 2 | 0 |
| Robinson, A. | 1 | 1 | 0 |
| Robertson, Professor | 3 | 0 | 0 |
| Rostron, Jas. Ashworth, 2nd Life Guards | 5 | 0 | 0 |
| Roberts, R. | 0 | 10 | 6 |
| Rowe, R., A.V.D. | 1 | 1 | 0 |
| Rock and Son, P.A. | 5 | 5 | 0 |
| Rutherford, R. | 2 | 2 | 0 |
| Rutherford, C., A.V.D. | 2 | 2 | 0 |
| Russell, Capt. | 3 | 3 | 0 |
| Russell, G. | 0 | 10 | 0 |
| Santy, A. H, | 1 | 1 | 0 |
| Samson, F. G. | 0 | 10 | 0 |
| Sartin, S. R., A.V.D. | 1 | 0 | 0 |
| Savage, J. B., A.V.D. | 1 | 0 | 0 |
| Sewell, H., A.V.D. | 1 | 1 | 0 |
| Simcocks, S. H. | 1 | 1 | 0 |
| Simpson, J. F. | 1 | 1 | 0 |
| Simpson, H. L. | 2 | 2 | 0 |
| Scott, J. | 2 | 0 | 0 |
| Spreull, D. | 1 | 1 | 0 |
| Stevens, F. R. | 0 | 10 | 6 |
| Stevens, H. W. | 1 | 1 | 0 |
| Stevenson, Robert | 0 | 10 | 6 |
| Stephens, J. | 1 | 1 | 0 |
| Stephenson, W. | 1 | 1 | 0 |
| Stanley, E. | 3 | 3 | 0 |
| Stanley, H. M. | 1 | 1 | 0 |
| Sturgess, S. | 1 | 1 | 0 |
| Shaw, H. K. | 0 | 10 | 6 |
| Skoulding, J. B. W., A.V.D. | 2 | 2 | 0 |
| Shipley, W. | 1 | 1 | 0 |
| Smith, S. | 0 | 10 | 6 |
| Smith, C. | 1 | 1 | 0 |
| Stock, R. A. | 2 | 2 | 0 |
| Summers, W. | 2 | 2 | 0 |
| Taylor, Peter | 1 | 1 | 0 |
| Taylor, R. | 1 | 1 | 0 |
| Taylor, W. A. | 1 | 1 | 0 |
| Tailby, Mark | 1 | 1 | 0 |
| Towlson, H. | 0 | 10 | 6 |
| Trigger, O. C. | 1 | 1 | 0 |
| Thomson, H., A.V.D. | 1 | 1 | 0 |
| Thomson, D. | 0 | 10 | 6 |
| Unsworth, I. B. | 0 | 10 | 6 |
| Varney, jun. | 0 | 7 | 6 |
| Vaughan, J. | 1 | 1 | 0 |
| Walters, W. B., A.V.D. | 2 | 2 | 0 |
| Walker, W., A.V.D. | 2 | 2 | 0 |
| Walker, W. D. | 1 | 1 | 0 |
| Walker, Jas. P. S. | 0 | 10 | 0 |
| Wallis, Page | 1 | 1 | 0 |
| Wally, Professsor | 1 | 1 | 0 |
| Wallis, W. S. | 1 | 1 | 0 |
| Wilson, S. M., A.V.D. | 1 | 1 | 0 |
| Wiggins, F. | 3 | 3 | 0 |
| Withers, S. H. | 2 | 2 | 0 |
| Wilson, W. | 1 | 1 | 0 |
| Winton, D. | 1 | 1 | 0 |
| Withers, H. | 1 | 1 | 0 |
| Withers, A. | 1 | 1 | 0 |
| Woodger, Joseph | 2 | 2 | 0 |
| Woodger, E. | 3 | 3 | 0 |
| Woodger, J., jun. | 3 | 3 | 0 |
| Woods, W. | 2 | 2 | 0 |
| Wolstenholme, J. B. | 0 | 10 | 6 |
| White, J. B. | 2 | 0 | 0 |
| Whittle, W. | 2 | 2 | 0 |
| Whitfield, G. Digby, A.V.D. | 1 | 1 | 0 |
| Whitworth, C. | 1 | 1 | 0 |
| Whincop, G. W. | 0 | 10 | 6 |
| Wragg, F. W. | 5 | 5 | 0 |
| Wyles, T. | 0 | 10 | 0 |

*Amount Received to the Fleming Testimonial.*

| 1883. | £ | s. | d. |
|---|---|---|---|
| May 7. 331 Subscribers | 465 | 6 | 6 |
| | £465 | 6 | 6 |

*Amount Paid for the Fleming Testimonial.*

| 1883. | | £ | s. | d. |
|---|---|---|---|---|
| May 7. | Mr. Hudson's Bill | 180 | 10 | 0 |
| „ | Mr. Batty's Bill | 240 | 0 | 0 |
| „ | Secretary's Expenses | 28 | 0 | 0 |
| „ | Treasurer's ditto | 5 | 0 | 0 |
| | Cash in Hand | 11 | 16 | 9 |
| | | £465 | 6 | 6 |

J. B. MARTIN, *Hon. Secretary.*

## THE FAMILY OF THE LATE ROBERT HALL.

### An Appeal for Assistance by Thomas Barker, M.R.C.V.S., London.

Dear Sirs,—Would you allow me to trespass on your space for the June issue of the *Veterinarian*, regarding the case of charity, so kindly brought before the profession in your last month's number by Professor Walley, of the Royal (Dick's) Veterinary College, Edinburgh? The case is that of the late Robert Hall, M.R.C.V.S., late of Stockton-on-Tees, and the appeal is for the widow and five children, who were on April 30th still in the workhouse at Stockton.

The case of the late Robert Hall is a very sad one, and, to be candid with the profession, I am afraid his troubles were largely brought about by departing from a strictly sober line of life, though this may have been due to anxiety and worry brought about by an exhausting Chancery suit, in which he had been long engaged. I knew little of the doings of my departed college friend until last October, when I saw in a north-country paper that he was in trouble, and I then sent him a little assistance. Through this circumstance Mrs. Hall wrote me from the workhouse, informing me of her husband's death and her destitute condition, and asking my assistance in obtaining a situation for herself, and for getting her children into some charitable institution. Finding from Mrs. Hall that her late husband had belonged to none of those numerous grand and friendly bodies that many of us no doubt do belong to, and not being able to render her any assistance of this kind, I advised her to write to Professor Walley, and ask him to place her case before the veterinary profession.

I now wish to supplement the kindness of Professor Walley by appealing especially to those members of the profession who will remember their fellow-student Robert Hall at Clyde Street College in the sessions 1862-3-4 as a sober, gentlemanly, and industrious young man; and I can only hope that Professor Walley's appeal to the general body will be kindly received, and that some help may be rendered to his widow and five children. I do not know the age of the oldest, but should think she is about nine years old. I see, from Mrs. Hall's last letter to me on April 30th, that the eldest has been elected to the Bamburgh Castle School for Girls in Northumberland, and that Sir Joseph Whitwell Pease would have nominated one of the boys to the Haverstock Hill School, but that he (Sir Joseph) finds that one of the rules of that institution excludes the boy in consequence of his being in the workhouse.—I am, &c.

*To the Editors of the 'Veterinarian.'*

THE

# VETERINARIAN.

VOL. LVI. No. 667. JULY, 1883. Fourth Series, No. 343.

## Communications and Cases.

### ON PLANTS IN RELATION TO ANIMALS.

By Professor James Buckman, F.G.S., F.L.S., &c.

(*Continued from* p. 382.)

In completing our descriptions of the Caprifoliaceæ, we have now three genera to examine; they are,

1. Viburnum.—*Leaves opposite. Flowers numerous on large terminal cymes.*

2. Lonicera.—*Leaves opposite on short petioles, or connate below the flowering branches. Flowers mostly irregular on terminal branches.*

3. Linnæa.—*Leaves opposite, broadly ovate. Flowers in pairs on long pedicels.*

1. The genus (Viburnum) is a very extensive one, and is named Viburnum from the Latin word *viro*, I tie, in allusion to the toughness of its branches, which are hence used for tying up small faggots and other purposes. We have in England two species which are common to limestone districts; they are as follows:

*Viburnum opulus*—Guelder Rose. Leaves more or less trilobed and cut; flowers large and conspicuous, more or less irregular in the wild state, but all with white regular 5-partite limbs to the corollas in cultivation.

*Viburnum lantana*—Wayfaring tree. Leaves broadly cordate. Flowers small, regular, forming a terminal cyme which, though

not so elegant as the former species, is still a favourite in our hedgerows.

Mr. M. Masters has given the following account of these plants:

"Two of the species grow wild in Britain—*V. lantana* and *V. opulus*. The former, commonly known by the name of the Wayfaring tree, is a large shrub generally found growing in hedges or woods. Its leaves are broad, toothed, downy beneath; its flowers all perfect, and its berries flattened, first red, then black. The leaves and berries are astringent. The latter are used in Switzerland in the manufacture of ink, while the former yield with alum a yellow dye. The wood is white and hard, and useful for turnery purposes. The rind of the root is used to make birdlime. The other British species, *V. opulus*, the Guelder Rose, has smooth, three- to five-lobed leaves, and the outermost flowers are destitute of stamens; while, by way of compensation, the corolla is much enlarged.

"In the cultivated variety of *V. opulus* all the flowers are affected in this way, so that the inflorescence becomes globular, whence the name Snowball tree by which it is frequently known. The red fruit is very ornamental in autumn. It is eaten in Norway and Sweden with honey and flour. A spirit is also distilled from it. The branches yield a yellow dye. The wood is used in Norway for making weavers' combs, shoemakers' pegs, tobacco pipes, &c. Many other kinds are grown in gardens, especially *V. tinus*, the common Laurestine, a native of the South of Europe, &c. In Corsica it forms large woods. Its leaves are oblong permanent, hairy beneath, its flowers pinkish or white, appearing in winter, its berries dark blue. This is a very valuable shrub, from its dense evergreen foliage and cheerful flowers. There are several varieties in cultivation. When grown as a standard for hall or conservatory decoration, the Laurestine rivals the bay in the beauty of its foliage, and excels it for its flowers."

2. The genus (Lonicera) was named after Adam Lonicer, a physician of Frankfort, who might rejoice in having a plant dedicated to him which is renowned not only for its fragrance but its beauty also.

This contains numerous examples in as far as species go, but only three are named as natives of Britain, and even these are not admitted by all to be truly indigenous. Dr. Syme has admitted the following:

*Lonicera caprifolium*—Perfoliate Woodbine.—Leaves deciduous, glaucous beneath; those of the barren branches shortly stalked, oval obovate; those on the flowering shoots oblong

* 'The Treasury of Botany,' p. 1213.

connate. Corolla tube subcylindrical, longer than the ringent limb; style glabrous. Berries oval, scarlet. Mr. Syme says, "Cambridge and Essex are probably the only counties in which it is not certainly introduced."

*Lonicera periclymenum*—Common Woodbine.—Leaves deciduous, glabrous, and mostly somewhat hairy. On the flowering shoots the leaves are more or less connate, but not to the extent of the former species. The flowers are in sessile whorls on the ends of the flowering branches. The fruit is of a dark scarlet colour. Both the above are climbers by reason of their flexile stems.

*Lonicera xylosteum*—Upright Fly Honeysuckle.—This is an upright shrub, with opposite ovate lanceolate leaves. The flowers are in pairs and have a short tube, and are succeeded by pairs of rounded scarlet berries.

The first two of these honeysuckles are very variable. The first has usually lighter-coloured leaves and flowers, and we have this day plucked examples of *L. perichlymenum* with well-developed connate leaves below the flower head.

We have gathered the *L. caprifolium* in the middle of a thick wood at Stanway, Gloucestershire, having been directed thereunto by the Rev. F. Witts, of Slaughter. Subsequently we have found the spot by the delicious perfume which the flowers exhale. We consider the two plants so separated approach each other so closely as to be scarcely specifically distinct, and we have in the hedgerows in Dorset a pale form of the *L. perichlymenum* so much like the *L. caprifolium* that we are often puzzled to make out any reliable distinctive characters.

These plants possess much the same medicinal value as the Elder, the Wayfaring tree, but in a less active degree. At the present time they are not even used; in rustic places a sort of wine has been made from the berries, which would doubtless have much the same effect as elderberry wine, but it is not so agreeable. Birds, however, eat the fruits most greedily.

As regards the *L. xylosteum* it is by some separated as a distinct genus. Its name has been given on account of the hardness of its wood from ξυλον (xulon), wood, and οστεον (osteon), a bone. Some of its sticks are made into tubes for tobacco pipes, and the teeth of agricultural rakes are often made of the wood.

The Common Woodbine is such a favourite plant that there is no wonder that the poets should constantly refer to it. Mrs. Lankester has been eloquent upon its characters, for which see the following:

"The beauty and exquisite fragrance of this well-known plant make it a favourite everywhere. It is evidently the true wood-

bine of the poets, and obtains its name from its habit of twining round the stems of other trees. Milton calls it the 'twisted eglantine,' and Shakespeare says,

> "So doth the woodbine, the sweet honeysuckle,
> Greatly entwist the maple."

"At the base of its long tubular flower lies the honey, and when the bee cannot reach it, other insects tap it by making punctures at the base of the tube, and thus regale themselves. In almost every country lane in England, from early in June to August, are we delighted with the sweet scent of this pretty climber. Its twining stems, by their powerful constriction of young and soft wooded trees while growing, often cause the latter to be deeply and spirally furrowed, though this is not often discovered till both are cut down. They turn from left to right, in this respect agreeing with the *Tamus* and *Polygonum convolvulus*, and differing from the great white bindweed and the scarlet-runner, both of which twist from right to left.

"In summer the leaves are abundantly marked with pale and curving lines and winding tracks, the work of the little grub of some dipterous insect, which in those parts has eaten away the cellular tissue, but left the cuticle untouched. No other English leaf, however, leaves such conspicuous evidences of his activity. Shakespeare, as if loth to exclude both the familiar names of this favourite plant, brings them together in one beautiful picture. He tells us that Beatrice 'lies couched in the woodbine coverture;' and Hero is told to

> 'Bid her steal into the pleachéd bower
> When honeysuckles ripened by the sun
> Forbid the sun to enter; like favorites
> Made proud by princes that advance their pride
> Against that power that bred it.'

"In the time of Chaucer the woodbine was considered as the emblem of true love. The bright red berries of the honeysuckle succeed the fragrant flowers, and add a new feature to its beauty. They are a favourite food with birds, and are perfectly harmless, unlike many berries of a similarly tempting appearance."*

3. *Linnæa*—of which there is only one species, and this is a native of Britain—has an ovate calyx tube, limb 5-partite, with lanceolate-subulate deciduous segments. Corolla funnel-shaped, bell-shaped, contracted into a narrow tube at the base, 5-lobed at the apex. Stamens 4, two longer than the other two. Flowers at first pink, afterwards yellow at the base, the divisions of the corolla being fringed with a line of pink.

The plant is small, but is very interesting, but it is not

* 'English Botany,' new edition, vol. iv, p. 207.

known to possess any medicinal quality; still, from its bearing the name of the great master of botany, which it appears was bestowed by Grenovius at the express desire of Linnæus, who chose this humble plant to transmit his own name to posterity; and it is interesting to know that when the great naturalist became ennobled, the Linnæa was bestowed upon him as a crest.

These notes conclude the Order Caprifoliaceæ, which it has been seen include many interesting plants, some of which at one time bore an overwhelming reputation for the possession of great virtues. Now, however, with the exception of the Common Elder and the Danewort, it is believed that they are for the most part mild and innocuous.

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## THE BENEVOLENT SOCIETY AND PROFESSOR WALLEY'S LETTER.

By Thomas Greaves, F.R.C.V.S., Manchester.

The letters published in the Journals by Professor Walley and Mr. T. Barker, appealing to the profession to help Mrs. Robert Hall and her five children now in Stockton-on-Tees Workhouse, do honour to the heads and hearts of the writers. Although they are utter strangers to me, I nevertheless trust that this appeal has been or will be liberally responded to. It is enough for me that they are the widow and children of a *veterinary surgeon*, and are requiring help *in their great distress*. I have sent Professor Walley £5, and if 100 or even 50 members of the profession will subscribe a like amount, he would be enabled to place the widow and her poor orphans in a position of comparative comfort. I hold that it is a sacred duty of every member to assist in such a case. Each can and ought to subscribe at least 10s. 6d. or 21s. I ask, nay implore, that they will do so; surely the consolation arising from the approval of a good conscience will be a sufficient incentive.

> "Charity like mercy is twice blest;
> It blesseth him that giveth and him that receiveth."

"Oh that man would be wise and consider his latter end!" It would seem that many cannot, or will not, be wise in time, for scarcely a month passes but we—the officers of the "National Veterinary Benevolent Society"—receive applications from widows or orphans in want of assistance, being left wholly unprovided for; but on inquiry it is found that the husbands or fathers were not members, and consequently they are precluded

by rules from receiving assistance out of the fund. We know, unfortunately, that some men, and some women even, are unworthy characters, and not deserving of sympathy, but do not let us condemn all for the sake of a few. We know it is a fact that there are cases in which the veterinary surgeon is toiling hard, is careful and deserving, but every shilling he can earn is required to bring up perhaps a large and increasing family. There are few who cannot make some provision if they are so disposed by insuring their lives, and paying a small sum yearly. The ordinary insurance companies which can expend more than half their income in large rent, large salaries, and extensive advertising, can repay handsomely; but our own *National Veterinary Benevolent Society*, whose funds amount now to thousands of pounds, and not having one shilling to pay for rent, salaries, or advertising, is enabled on receiving a small annual payment of 10s. 6d. or 21s.—or less than 2½d. or 5d. per week—(after the entrance fee is paid), to relieve the widow or orphans, those who are near and dear to us in this life, so that they are thus cared for and made comfortable when the husband is no more. Remember this, for in the inscrutable designs of Providence you, as a veterinary surgeon, may unfortunately be suddenly removed to that bourne from which no traveller returns. Remember also that

> "The numberèd hour is on the wing
> That lays thee with the dead."

We invite all to become members.

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## VETERINARY REGISTRATION.

By W. J. Mulvey, M.R.C.V.S., Cockton House, Bishops Auckland.

Sirs,—I should like to ask the Registration Committee on what principle of selection they acted when they placed nearly a thousand men upon the Register, giving them in the eyes of the Veterinary Department of the Privy Council the same professional position as that occupied by men who have spent their time and their money at one of the colleges, and obtained their diploma. Could not the duties performed by the Committee have been better done by a junior clerk? The whole proceedings has been a complete farce. It turns out that all that was necessary to obtain registration was to send an affidavit and three guineas, and unless an affidavit was sent in opposition no

notice whatever was taken of any evidence, however strong and circumstantial. I forwarded documentary evidence to the Secretary with regard to one man, and I now send you a copy of a letter received from a superintendent of police to the same effect,* and I trust that the Registration Committee will feel comfortable in their associate, and will confer upon him some further distinction (a Fellowship for example). The newly registered veterinary surgeon has already given it out that he has obtained his diploma.

Another case is that of a quarry owner whose horses I attended, and have done for many years. I asked him only last week if he had ever called himself or been called a veterinary surgeon, when he at once replied, "Certainly not, never thought of or pretended such a thing." "Then why did you apply for registration?" I answered. "Well," he said, "I saw it advertised, and I castrate my own, and sometimes my neighbours' calves, pigs, and lambs, and I thought that unless I was registered I should be prevented doing this." This man knows nothing whatever of veterinary medicine or surgery, nor, as he acknowledges, has he ever pretended to. He is only a young man, about thirty-two or thirty-three years of age, and now he also is a fully qualified veterinary surgeon.

Another glaring case is that of a colliery smith. I attend the horses at the colliery at which he works. I could go on relating similar cases over and over again. I opposed all these men as requested by the circular before a certain date, and the Secretary acknowledged the receipt of my objections, and wrote and asked me to send each objection on a separate sheet, but said nothing whatever about any affidavit. I wrote all out again, and sent them, and some two or three weeks afterwards I received the Supplementary List; but finding that there were no names on it that I could object to, I took no further notice of the matter, considering that I had done all that was required. The only reason that I can assign for the sending out of the two lists in the manner in which they were sent was in order to mislead. And I further think that instead of the Committee

*(COPY).

"Police Office,

"DEAR SIR,—A man named ————, a letter carrier, was convicted at the Durham Assizes on the 6th December, 1860, of stealing a letter containing six stamps and half a sovereign, and was sentenced to three years' penal servitude.

I am, sir, your obedient servant,

(SS.) "J. THOMPSON,

"*Superintendent.*"

"P.S.—This man was convicted of stealing the letter at Sunderland, age at that time twenty-nine years. "J. T."

deserving a vote of thanks from the profession which they have irreparably injured, they ought to have something (I won't say what) very different. I am, &c.,

W. J. MULVEY.

*To the Editors of the 'Veterinarian.'*

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## *RE* VETERINARY INSPECTORS.

GENTLEMEN,—In the *Veterinarian* for May, 1881, you gave an account of the Quarterly meeting of the Council of the Royal College of Veterinary Surgeons held April 2nd, and at page 360 Mr. Taylor is reported to have said, in reference to "Registered Practitioners," that "those men were not veterinary surgeons, but only veterinary practitioners," and the President said "he did not think that by the addition of 'those names' to the Register the importance or dignity of their profession was in the slightest degree diminished." I presume neither of these gentlemen had any idea of what the Privy Council would do on the 10th of the following month, or their observations respecting the registration of "those men" would have been very different. Let me call your attention to a case that has just occurred. The local authority of a country district, acting under the Contagious Diseases (Animals) Act, met to appoint a veterinary inspector, when two names were before them, one a M.R.C.V.S. of over thirty years' standing, but *a stranger in the district*, the other a man well known as "the cow doctor," a native of the place, and who had happened to get "registered" a few months ago. The local authority appointed the "cow doctor," giving him the preference *on account of his long residence in the place*, but subject to the Privy Council approving of his *qualification!* To this the Privy Council returned as their reply a printed order of May 10th, in which they cancel their former rule of requiring veterinary surgeons exclusively for the appointment, and place "those men," because they are registered, on equal grounds with the M.R.C.V.S.; consequently the man whose only qualification is a long residence in the place is now the veterinary inspector for the district, and will doubtless be considered by some to be a properly qualified veterinary surgeon. Thus the man who never had his competency tested by an examination, and whose only *expense* in becoming "qualified" has been the *registration fee*, has gained an important appointment, while the man who spent five years in study at a cost of about £300, and proved his professional knowledge by passing the usual examinations, has failed. Why, gentlemen, in order to be a teacher in a Board

School it is necessary to pass an examination by competent examiners. I ask, then, is it fair, is it right, is it just, "those men" should be so placed? I confess I can regard it as nothing less than an insult to the profession, and an outrage on common sense, and I trust the College authorities will at once use their influence with "the powers that be" to obtain an immediate alteration by restoring the M.R.C.V.S. qualification, and unless this is done it appears to me that there is no alternative but for every veterinary surgeon now holding an appointment as veterinary inspector to resign the appointment, or retain it with the very questionable "dignity" of being considered on an equality with "those men" who are *not* veterinary surgeons, but *only* veterinary practitioners.

I am, gentlemen, yours faithfully,

ANOTHER HUMILIATED VET.

*To the Editors of the 'Veterinarian.'*

## Pathological Contributions.

### CATTLE PLAGUE.

THIS disease appears to be confined to the Empire of Russia at the present time.

### PLEURO-PNEUMONIA.

No cases of this disease have appeared among living animals in the Netherlands between April 22nd and May 19th; but in the Spoeling district 21 animals were found affected in the lungs after being slaughtered. In the United States from six to eight cases are monthly among dairy cattle in the neighbourhood of Baltimore. Inquiries are being made in the Western States as to the existence of this disease.

In Great Britain during the four weeks ended May 26th, 1883, there were 34 outbreaks of this disease reported, and 90 cattle attacked, this shows a diminution compared with the corresponding period of 1882, when the outbreaks reported were 43 in number, and the animals attacked 94.

### FOOT-AND-MOUTH DISEASE.

THIS disease is very prevalent on the Continent, it exists in seventeen Cantons in Switzerland, in Italy the disease is widely spread, it is also reported from Germany in various places.

In Great Britain, during the four weeks ended May 26th, 1883, there were 429 fresh outbreaks of this disease reported, and 12,883 animals attacked, 120 of which died. In the corresponding period of 1882, the outbreaks reported were 89, and the number of animals attacked 3160, of which 27 died.

## SWINE-FEVER.

During the four weeks ended May 26th, 130 outbreaks of this disease were reported in Great Britain, 647 swine were attacked, 139 of which died. This is a considerable diminution from the numbers reported during the corresponding period of 1882, when the outbreaks reported were 216, the swine attacked 927, of which 192 died.

# Facts and Observations.

New Colour Reactions of the Alkaloids.—Dr. C. Arnold—(1) Coniine. If a few drops of syrupy phosphoric acid are mixed with a drop of coniine, and the mixture is evaporated over a small flame in a white porcelain capsule, the mixture takes a fine green colour. (2) Nicotine, treated in the same manner, gives a deep yellow or orange colour. (3) Aconitine, the known violet colour, on evaporating this base with phosphoric acid, is best obtained if a few particles are stirred up with some drops of syrupy phosphoric acid, and heated from ten to fifteen minutes on the water bath.—*Chemical News.*

Cattle Plague in Egypt.—The *Egyptian Gazette* of June 25th states that bovine typhus exists along the Mahmoudieh Canal, and that in a distance of thirty miles twenty carcases of diseased animals have been counted, thrown in by the Fellaheen to avoid burial, and are allowed by the authorities to pollute the only water supply of Alexandria. Asiatic cholera is also officially declared to have broken out at Damietta.

Court Presentations.—A contemporary very justly observes that "The Prince of Wales has done an act of justice to an inadequately appreciated branch of the army. He has had cancelled the strange rule of etiquette which debarred officers of the veterinary department from presentation at Court. All other military officers were entitled to that privilege, and why this invidious distinction should ever have been drawn is incomprehensible."

# THE VETERINARIAN, JULY, 2, 1883.

Ne quid falsi dicere audeat, ne quid veri non audeat.—CICERO.

## THE TRACHEAL METHOD OF ADMINISTERING MEDICINES.

WE deem it desirable to call the attention of our readers to the digest which we publish elsewhere of Dr. Levi's work on 'Tracheal Injection of Medicines in the Treatment of the Diseases of the Lower Animals.'

Dr. Levi cannot be quoted as the discoverer of the fact of the absorbent power of the bronchial membrane, nor of the further fact that the structure will tolerate without injury the contact of irritating substances; in fact it has long been known that the serious dyspnœa which often follows the entrance of even bland substances into the respiratory passages is due to the irritability of the edges of the glotteal opening. Many years ago we recorded the injection of the virus of pleuro-pneumonia into the trachea of a heifer without injury. Dr. Levi, however, has worked out the subject experimentally, and the veterinarian may now with confidence essay the new method of administering drugs in special cases, such as tetanus, in which administration by the mouth is difficult or impossible, and also in such a disease as that induced by the lung strongyle, where the direct action of a medicament on the parasite might be most effective. At any rate, it must be admitted that Dr. Levi has added considerably to the resources of the therapeutist.

## INTERNATIONAL VETERINARY CONGRESS AT BRUSSELS.

IN the *Annales de Médecine Vétérinaire* for June Dr. Wehenkel announces that the International Veterinary Congress will be held in September, under the most favourable auspices. Delegates will be sent, not only from different European countries, but also from America.

The United States Veterinary Medical Association, at its

meeting on March 20th, resolved—"That a delegate should be sent to the Congress at Brussels."

The delegates already appointed are:

(*a*) England: Professor Brown, Chief of the Veterinary Department of the Privy Council, &c.

(*b*) Austria: M. Roll, sen., Director of the Veterinary Institute of Vienna, &c.

(*c*) France: M. H. Bouley, Inspector-General of the Veterinary Schools of France.

(*d*) Roumania (for the Minister of War): M. Constantinesco Parrait, Veterinary Surgeon.

(*e*) Switzerland: M. Poterat, Lieutenant-Colonel, Chief Veterinary Surgeon in the Swiss Army; and M. Berdez, Director of the Veterinary College, Berne.

The Veterinary Medical Society have delegated to the Congress MM. Houssin, President; Rossignol, Secretary; and Butel, Member of the Society.

That of Silesia is to be represented by MM. Ulrich, of Breslau, President; Metzdorf, Professor at Breslau; Fredler, Veterinary Surgeon at Cujet.

Finally, that of Puy-de-Dôme will be represented by M. S. Gressonmanche, of Aigneperse.

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## Translations from the Foreign Journals.

### PRACTICAL MANUAL CONCERNING TRACHEAL INJECTIONS IN THE HORSE. NEW THERAPEUTIC METHOD OF THE TREATMENT OF THE MALADIES OF DOMESTIC ANIMALS. By Dr. Levi, of the University of Pisa.

One knows how the faculty of absorption is developed in the bronchial mucous membranes and in the pulmonary lobules. Up to the present, therapeutics have only profited by this circumstance, to modify the economy by the action of divers gaseous agents, such as compressed air, vapours of oxygen, vapours of ether, or of chloroform, &c.

It is difficult to believe that this mucous membrane and these lobules, of such a delicate texture, should be endowed with a tolerance sufficient to permit the administration and

direct absorption of liquids holding in solution divers therapeutic agents.

The numerous observations and experiments reported by M. Levi establish in the most evident manner that this fact is not only a reality, but it constitutes further a valuable resource for the treatment of domestic animals.

It was chance, we may say, which at a time now distant (1817) put Professor Gohier, of the Veterinary School of Lyons, on the road to that discovery on which he afterwards acted. Two pupils were directed to kill a horse by the injection of water in the windpipe. At the time when M. Gohier overtook them seven or eight litres had already penetrated without producing any sensible derangement.

It was not without surprise that M. Gohier observed that it was necessary to inject in the course of half an hour some thirty-two litres before the horse fell. The Professor of Lyons repeated this experiment several times with smaller quantities, and remarked that the animals experimented on did not apparently suffer any injury. From this he concluded that it might perhaps be possible to treat with advantage certain affections of the respiratory organs by administering fluids by means of an aperture made in the trachea.

In 1828 M. Lelong, veterinary surgeon to the 1st Regiment of Artillery, tried without much success daily tracheal injections, comprising each one a litre of water strongly salted, on several glandered horses.

Some years later M. Delafond took up the experiments commenced by M. Gohier. He injected several medical agents into the windpipe, and soon recognised that it was possible to inject medicines into the bronchiæ without danger. He asked himself why one could have recourse to these injections to combat divers affections of the bronchiæ and lungs, to administer in certain cases (in lockjaw with trismus, for example) those preparations which act on the nervous system, in this way rather than in any other.

Experience only, he adds, can decide these questions, which are new to us and of the greatest interest.

With the exception of an experiment made about twenty years ago by Professor Perosino, of the Veterinary School of Turin (for the cure of a case of chronic bronchitis by the tracheal injection of solution of nitrate of silver), one may say that since M. Delafond there has been no further question of tracheal injections in veterinary medicine.

It was reserved for Dr. Levi to take up the experimental study of this therapeutic method, and to show us the bene-

fits that can be derived from it in the treatment of domestic animals.

After having given the history of the new method, the author gives some anatomical and physiological information calculated, on the one hand, to explain the practical part of the operation, and, on the other, to interpret the effects of the injected preparations.

According to the quantity of liquid to be introduced into the trachea, M. Levi employs either the usual syringe for hypodermic injections of about the capacity of five grammes, or a bottle in vulcanised caoutchouc, or an injecting bottle exactly like the spray producer of Richardson for local etherisation.

Either of these three instruments being ready, a hollow needle is passed through the trachea. This introduction is made in the middle of the neck as much as possible in an inter-annulary space.

M. Levi says that one can push in the needle without being much concerned as to whether it passes through a ring or an adjoining space.

Once the needle has penetrated the trachea it only remains to adjust the apparatus, and make the instrument chosen for the injection act.

Instead of a syringe or an injecting bottle one can use advantageously the much more simple apparatus recommended by Dr. Casse for the transfusion of blood. This apparatus is simply a tube of caoutchouc provided with a sort of glass funnel, and terminated by a tube fashioned in such a manner that it can be joined to a hollow needle.

The action of the pressure alone (which can be augmented or diminished by elevating or lowering the funnel) is sufficient to introduce the liquid with the necessary slowness.

If injecting an irritating liquid M. Levi advises before withdrawing the needle to wash the place by causing to pass through a little ordinary water. When the injection is performed on an animal suffering from an infectious disease the needle can be disinfected either by washing it several times in rectified alcohol, or by making it red hot in a spirit lamp and then dipping it in an appropriate liquid—olive oil or gum arabic $\frac{3}{100}$th.

To serve as a guide in using the new method, M. Levi lays down the following general rules:

1. The quantity of liquid that can be injected in the trachea at one time is very variable, generally its dose is limited from 5 to 30 grains, larger quantities of 100 grains are very exceptional.

2. The liquid should be prepared in such a manner that all the substances composing it are completely dissolved; it is preferable that the reaction be neutral or alkaline, although a slight degree of acidity is not objectionable.

3. Those medicaments among the alkaloids are preferable as they have a more energetic and sure action, a more exact posology, and a better defined composition. Their salts, being more soluble, are preferable. Next to the alkaloids in order of importance come the tinctures, the extracts and the infusions. For the salts with an inorganic base it is best to choose those that display the least irritating local action.

4. As a general rule the dose of the medicaments that can be introduced by means of tracheal injection must be regulated at about $\frac{1}{10}$th to $\frac{1}{20}$th of the ordinary dose of the same medicaments when administered by the digestive canal. Nevertheless, if a substance with an energetic action is used special doses must be given. In all doubtful cases it is necessary to experiment on the tolerance of the individual, which is modified by conditions of age, illness, condition, &c.

5. The injection can be made in the whole length of the trachea and between the breathings, only if any dyspnœa exists, or frequent or interrupted respiration, it is best to puncture at a distance from the larynx, and to inject the liquid slowly so as not to provoke a cough, which it is important to avoid, although not dangerous. If, on the contrary, it is necessary to direct the medicaments towards the higher regions of the trachea, then the needle is inserted in the neighbourhood of the larynx after having caused the animal to trot for some time.

We need not follow the author in the exposition of experimental information which forms the third chapter of his interesting manual, although it seems to be established:—

1. That the tolerance of the respiratory mucous membrane is very great below the larynx, even greater than that of the digestive tube. This is explained, according to M. Levi, by the rapidity of absorption.

2. That fat substances contrary to the opinion of M. Delafond can be absorbed by the mucus of the bronchi when the quantities injected do not exceed the ordinary therapeutic doses, that is about ten grains.

3. That tracheal injections, even those with plain distilled water, cause a diminution of from four to six respirations every minute, and that during several hours. That in cases where the respiratory movements have been made

more frequent by a morbid condition, this diminution may be even two or three times more marked.

4. That the medicaments that are introduced in the circulatory stream by the respiratory passages rapidly exhibit a very decided action, even when very small relative doses are employed.

5. That purgative preparations injected in the tracheal tube have little or no influence on the digestive tube.

In the 4th chapter devoted to special pharmacology, M. Levi establishes first the superiority of the method of tracheal injections over all others on these grounds: that the bronchial pulmonary track is the shortest by which to introduce the therapeutic agents into the arterial circulation, and by its intermediation to those parts on which they have an elective action. The author then gives an account of the experimental studies which he has made on a large number of medicaments. These are reviewed in alphabetical order, and for each the form and the tracheal doses are formulated, with the medications to which these medicaments respond.

M. Levi has devoted the last chapter (very lengthy and comprising more than half of the work) *to clinical therapeutics,* where a long series of observations are reported relating to those maladies which have been treated by the tracheal method.

In this series we see written under the title "Affections of Glanders" sixteen announcements of recovery out of eighteen cases. While admitting that the diagnosis in each of these cases was perfectly legitimate, we imagine that such therapeutic results as these cannot be admitted without very great reserve. It is true that glanders as well as every other dyscrasic affection may exist in degrees notably different one from the other.

By the side of one subject afflicted in a profoundly inveterate manner, and consequently incurable, may be found one superficially affected by a sort of weakness. We can easily believe that such a one might be easily cured spontaneously even by the efforts of nature alone, seconded by a good hygienic condition.

But this can no longer be the case when the malady has existed for some time, and has been aggravated by alterations of a grave character, such as neoplasy, ulcerations, chronic adenitis, &c.

Without wishing to affirm that in these cases a cure is absolutely impossible, I imagine that it will be always difficult, and, above all, uncertain and often dangerous. A sub-

ject like this, after having been thus affected, may be considered as cured, when in reality the evil is only hidden and waits only for a favorable opportunity to break out again, often in a more dangerous form than before.

As such animals are in permanent danger, in an incessant condition of transmission of disease, I imagine that it is much wiser, from an economical point of view, to propose an immediate sacrifice than to place them under the influence, more or less doubtful, of tracheal or other medication, whatever may be the efficacy with which it may be endowed.

I could make other reservations concerning the numerous successes obtained by M. Levi, by employing tracheal injections in the treatment of divers other maladies, but I will abstain, and limit myself to the remark that the results attained up till to-day show that these said injections constitute a very useful therapeutic method, likely to render invaluable services in the treatment of a great number of animal diseases, notably in chronic bronchitis, verminous bronchitis, pulmonary gangrene, and all other serious maladies, when the administration of medicaments by ordinary means is dangerous, difficult, and impossible.

A. Degive,

*Annales de Médecin Vétérinaire, Jan.*, 1883.

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## Extracts from British and Foreign Journals.

### IMPORTATION OF FOREIGN CATTLE.—DEPUTATION TO LORD CARLINGFORD.

Yesterday (June 13th), a numerous deputation from various large towns in England and from Corporations and Chambers of Commerce waited upon the Lord President of the Council at the Privy Council Office to protest against any increase in the restrictions on the importation of foreign cattle. The deputation was accompanied by the following members of Parliament:—Messrs. Arthur Arnold, Henry Lee, Hon. Lyulph Stanley, Henry Broadhurst, Peter Rylands, C. B. B. M'Laren, P. H. Muntz, A. Giles, T. B. Potter, John Barran, R. N. Phillips, Benjamin Armitage, C. M. Norwood, Jacob Bright, C. H. Wilson, W. Coddington, Professor T. Rogers, Arthur Pease, Isaac Wilson, W. H. Leatham, E. A. Leatham, Thomas Shaw, J. P. Thommasson, — Dickson, A. Morley, Dr. Cameron, Dixon-Hartland, C

H. Hopwood, Joseph Cowen, John Morely, Samuel Smith, J. McMinnies, Sir A. Fairbairn, and Sir E. Watkin.

*Mr. A. Arnold,* in introducing the deputation, said it was admitted on all hands that on this question the action of her Majesty's Government should have reference to the interest of the consumer, and the deputation which he had to present to his lordship was strongly representative of that paramount interest. When he told his lordship that there were in that room representatives from forty-two of the largest towns in England, in fact representing ten millions of the population of England, he thought he might claim for the statements of the deputation his lordship's most careful consideration. The deputation viewed with great apprehension a movement originating with the Royal Commission on Agriculture, which sought to prohibit the importation of live animals from all countries except from Canada and the small Scandinavian Kingdoms. They thought that such an arrangement would greatly augment the price of animal food, and ought not to be permitted.

Mr. A. Lyon, president of the Foreign Cattle Trade Association of London; Mr. J. H. Spencer, chairman of the Yorkshire Confederation of Butchers' Association; Mr. Richard Hall, of Liverpool; Mr. W. Hood, president of the Butchers' Association of Glasgow; Mr. W. Field, of Dublin; Mr. J. A. Batey, of Newcastle-on-Tyne; Mr. J. H. Rodway, of Birmingham; and Mr. Mark Price, of Manchester; Mr. Dawson, M.P., Lord Mayor of Dublin; Mr. Jacob Bright, M.P., and Mr. McCullagh Torrens, M.P., then severally addressed his lordship, pointing out that compulsory slaughter at the place of the debarkation has severely affected the number of food animals sent to us from scheduled countries—for instance, Schleswig-Holstein and Holland; whereas the imports from countries like Denmark and Sweden, which are not liable for compulsory slaughter on landing, have very materially increased. One of the arguments in favour of prohibition was that the importation of dead meat would increase, but statistics were quoted showing that the importation of dead meat was decreasing, that the importation of cattle from Germany and Belgium was stopped in 1877, so far from the dead meat trade having thereby received an impetus it had enormously decreased, and that the prohibition of the live importation from France had not been followed by an attempt to substitute the dead meat trade. Several of the speakers also denied that the foot-and-mouth disease was introduced by foreign cattle, and said it was known in England before foreign cattle were admitted.

*Lord Carlingford*, in reply, said—Before I say a word as to the subject of this conference, I wish to say that I regret the absence of my right hon. colleague, Mr. Dobson, who has been called off to the House of Commons by the same cause, I believe, which has kept away other members as Mr. Arnold has stated. As to the subject of the deputation, I am in the agreeable position I think of finding it necessary to say a very few words indeed, and that for this reason, that there seems to me so little ground of difference between the deputation and myself. (Hear.) I hope and think I understand the main object of the deputation to be this, namely, to support her Majesty's Government in the maintenance of the policy upon this important subject which they have already announced. When I say that, I do not forget that I have heard several important remarks in favour of the relaxation of the system which now subsists with regard to the importation of foreign cattle. (Hear, hear.) Well, I am not able to give any promise under present circumstances that the restrictions now in force can be largely modified, and especially that the system of slaughtering at the ports applied to a large proportion of the countries of the world can be at present, at all events, abandoned. I may remind you that that system cannot be abandoned by the Government consistently with the existing Act of Parliament, and without an attempt, which would be very unwise, at fresh legislation, and an attempt in the opposite direction, which we deprecate and are prepared to resist. But as to the effect of the system of slaughtering at the ports, I think there have been some observations made which are not quite consistent with the facts as we view them in this department. It is at all events satisfactory to know that since the passing of the Act of 1878 the total foreign importation, in spite of the system of slaughter at the ports, has considerably increased. And with regard to the American case, which has been dwelt upon specially by one or two speakers, the belief here is that the recent falling off in the American importation has not been due to the system of slaughtering at our ports, but to the increased price and the increased demand on the other side in their own market. I may add that for the first two years after the system of slaughtering at the ports under the Act of 1878 had come into operation the American importation increased. No doubt it has decreased since. Happily, that vacuum has been more than filled up by increased importations from other quarters. But, however that may be, I hope I may be allowed to assume that the main object of the deputation is to support

her Majesty's Government and this department in resisting any increase in the present restrictions, and anything like a return to prohibition. (Hear, hear.) I am not surprised, knowing what has been going on lately, and remembering what took place a few weeks ago in this very room—I am not surprised that this deputation should have paid me a visit to-day, and I am bound to say it gives me the greatest pleasure to see them, and to have heard the extremely valuable statements of facts and opinions which they have brought before myself, and through me before the Government. I remember receiving a deputation, certainly of great importance and weight, representing the agricultural interest, in this room, and I happened to remind them that it would be very easy indeed to fill the room with an equally numerous and an equally important deputation representing the other side of the question; and that event has taken place to-day. You may be well assured that the Government will continue steadily administering the Act, as we have already been doing, and upon the principles which we have already announced, namely, acting thoroughly up to its spirit, but not attempting to strain it in any way in the direction of prohibition, as we have been pressed to do, and not attempting to substitute for it some fresh piece of legislation in the direction of either total or largely-increased prohibition. It was, perhaps, the first duty of the Government and of this department to consider first the interest of agriculture in this country. That no doubt is the case. But my duty does not cease there, and certainly the duty of the Government as a whole is not so limited. Their duty is to take care that the interests of the country as a whole, and in this matter the vast interests of the consumer, which have been so ably pressed upon my mind to-day, shall not for a moment be forgotten. And I think I may say for all of us—I am sure I may speak for myself—we cannot forget those interests. They are prodigious, and nowhere can they be more felt, as our friend Mr. Torrens has said just now, than in this vast population among whom we find ourselves. Gentlemen, those interests have not been forgotten by the Government, and after the visit you have paid me and after the statements made by this representative and most important deputation, those interests of the consumer certainly will not and cannot be forgotten.

*Mr. Arnold* thanked his lordship for the kindness with which he had received them, and the deputation then withdrew.

# THE NATURAL HISTORY OF THE LIVER-FLUKE AND THE PREVENTION OF ROT.

By A. P. Thomas, M.A., F.L.S., Balliol College, Oxford; Professor of Natural Science in the University College, Auckland, New Zealand.

[Republished by the kind permission of the Journal Committee of the Royal Agricultural Society.]

Liver-rot, although so destructive a disease, is a preventible one.

The object of the present paper is to give a popular account of the results of a research into the natural history of the parasite which causes the liver-rot of the sheep and a number of other animals. This research, which has now been completed, was undertaken by me on behalf of the Royal Agricultural Society of England in June, 1880; and the progress of the investigation has been already reported in two papers * contributed to the 'Journal' of the Society. A short account of the completed research appeared in *Nature* for October 19th, 1882, and a detailed account intended for scientific readers was published in the *Quarterly Journal of Microscopical Science*, for January, 1883. To this last-named paper I may refer any reader who desires to learn the details of the development of the liver-fluke. The present paper is only intended to give the outlines of the life-history of the fluke in such a way as to enable the farmer and the general reader interested in agricultural matters to understand how the parasite is propagated through successive generations, how the sheep incurs the disease by taking in the young fluke with its food, and lastly, the various methods of preventing the spread of so destructive a disease. Technical terms will therefore be purposely avoided.

For the sake of convenience the subject is divided into the following parts:

I.—Nature of the disease.

II.—Life history of the liver-fluke.

III.—Prevention of the rot.

## Part I.—Nature of the Disease.

The rot, liver-rot, fluke disease, coathe, or bane, are all names given to one and the same disease. It is sometimes known as the sheep-rot, since amongst our domesticated

* 'Report of Experiments on the Development of the Liver-fluke, vol. xvii, 1881, April, p. 1; Second Report, vol. xviii, 1882, Oct., p. 439.

animals the sheep is by far the most frequent victim. Very many other animals that eat grass or herbs are, however, subject to the disease, including cattle, deer, horses, pigs, rabbits, hares, kangaroos, camels, &c.; and even man himself, is occasionally attacked.

Liver-rot has been known and dreaded from very early times; it was so well known in Shakspeare's day that an allusion to it occurs in his writings. It is unnecessary for me to enter here into a history of the disease; for this I may refer to Professor Simond's paper.*

Many theories have been suggested as to the cause of the disease, several of them being very far from the truth. It is really a parasitic disease, and is caused by the presence, in the bile-ducts of the liver of the diseased animal, of large numbers of a flat worm, known as the liver-fluke (called by zoologists *Fasciola hepatica*, or less correctly, *Distoma hepaticum*). The liver-fluke has the shape of a privet-leaf, or of a small sole; it is pale brown or of a flesh-colour, and is about an inch or an inch and a third in length, and in breadth about half its own length. At one end is a narrower projecting portion, which may be compared to the short thick stem of the leaf; this is the head-part, and at its tip is placed the mouth in the middle of a small sucker or sucking-cup, by which the fluke can attach itself. At the point where the head joins the flat body and on the lower surface is a second sucker—the ventral sucker.

The liver-rot caused by these flukes is always common in certain districts of England, and it has been estimated that the average annual loss of sheep in the United Kingdom amounts to no less than 1,000,000. The rot also occurs almost all over the world, extending to Egypt, Australia, Tasmania, and North and South America, and is nearly or sometimes quite as destructive in these countries as in the British Isles. Professor Leuckart estimates the average loss per annum in Central Europe alone at 1,000,000 head.

But a series of wet seasons always increases the prevalence of the disease. At such times it spreads to districts which are ordinarily quite free from it. The year 1879 was one of a succession of wet seasons, and the losses during the end of that year and the following spring amounted to no less than 3,000,000 sheep.

(*To be continued.*)

* 'The Rot in Sheep,' London, John Murray, 1880. See also 'Journal of the Royal Agricultural Society,' Second Series, vol. xvi, part i, 1880, p. 121.

## CANADIAN CATTLE DISEASE.

We have received the Report of the Minister of Agriculture for the Dominion of Canada, for the Calendar year 1882, from which we extract the following remarks relative to a disease affecting cattle, locally known as the "Pictou Cattle Disease."

### "Remarks on the Pictou Cattle Disease.

(By Dr. Wm. McEachran.)

Pictou, *30th December*, 1882.

*History.*

"This disease, although it has only been brought to the notice of the authorities within the past four years, has been present in the County of Pictou for at least forty years, as many old men have stated to me that they remember the disease when boys, under the name of 'horn distemper,' a name which it still retains among the cow doctors of the county; the popular remedy for the disease being boring the horns and splitting the tails, with the additional torture of pepper and salt inserted into the wounds. It would appear from report to have been most virulent in and around the town of Pictou, twenty-five years ago, about the same time it made its appearance to a considerable extent around New Glasgow. Twenty years ago attention was drawn to the large number of cattle lost in the district of Merigomish, and about the same time also a number of cases were lost at Knoydart, on the borders of the County of Antigonish. Since that time it has continued in a more or less aggravated form in all these districts.

In 1881, it appeared for the first time at Fisher's Grant, and this year it was reported for the first time at Churchville. It will be seen, by reference to a map of the county, that it is confined to areas separated from each other by considerable distances, in one case ten miles, the space between being perfectly free from this disease. The disease appears to affect animals most in the months of June, July, and August, extreme heat favouring a rapid development and a rapid course. Cold retards the development, and favours a more chronic course..

*Nature.*

It would appear to be a constitutional affection manifesting itself in a disturbance of the functions of nutrition, at

first, as constipation, followed by a copious diarrhœa which, in some cases, becomes watery in consistence; with this is a considerable elevation of temperature, and following is, in chronic cases, a more or less rapid wasting of the body, loss of appetite, and lessening or loss of the secretion of milk, in which there is found a peculiar *dungy* smell and taste; but this is not present in all cases, as the same peculiar offensive smell is, in some cases, exhaled from the skin. These symptoms are accompanied with or followed by a greater or less effusion of limpid serum into the peritoneal cavity, and an infiltration of serum into the subperitoneal and mesenteric connective tissue from the stomach to the rectum, without at the same time any inflammatory lesions in any part of the body.

*Causes.*

During the winter months, I have found as a rule, the stables to be low, ill ventilated and filthy in the extreme; to this there are, of course, certain exceptions. Feeding on badly cured hay and coarse marsh grass, as is the common custom during the winter months, will unquestionably tend to lower the constitution of the animals and render them liable to contract disease readily when exposed to it; and it is in this way that all these conditions taken together work, as I found that the majority of animals were put out on the grass last spring in a half-starved condition.

That there is some *specific cause* at work producing the disease, I am convinced from the fact that I have found the disease appear amongst well kept and ill kept stocks alike, and in thoroughbreds as well as the common breed of the country, producing, in all cases, the same symptoms and similar *post mortem* appearances. I beg to lay before you the results of the experiments conducted in this connection.

(1.) A calf inoculated with serum from the peritoneal cavity of a cow which was sick from the disease, and on which Dr. Osler and myself held a *post-mortem* examination. She was inoculated on 15th September, by hypodermic injection. There was a considerable elevation of the temperature for a day or two, indicating fever; the appetite kept good and rumination continued. The temperature then went down and was taken every day till 2nd December; it varied greatly, being sometimes as high as 104°; but no active symptoms of disease appeared, although the animal, notwithstanding a liberal supply of good food did not thrive.

She was killed on December 2nd, and *post mortem* showed no signs of disease whatever, neither necroscopically nor

microscopically. The same may be said of a second calf inoculated with serous fluid from the small intestines; nearly the same symptoms, indicating septic fever, were observed. *Post mortem*, no pathological changes were observed.

A sheep was also inoculated with intestinal fluid, and up to the present time, with the exception of slight septic fever at first, the animal appears to be in perfect health.

### "*Stinking Willie.*"

There being a firm conviction in the minds of the majority of the people of this county that the disease was caused by the eating of a weed known as the "Stinking Willie," scientifically known as "Senecio Jacobea." To set the matter at rest, two yearling cattle, a steer and a heifer, were fed on the weed, in its green state, and also in its dried condition; they have been receiving it at the rate of half a pound daily, cut fine and mixed in a mash; they did not eat it readily at first, but gradually took it without any difficulty.

These showed no symptoms of disease whatever, the temperature never rising above 102°. On 2nd December I killed the heifer, and *post mortem*, no pathological changes were to be found, which proves conclusively that the weed has nothing whatever to do with the disease. The other two were subsequently killed and found healthy.

These results prove that further and more extended experiments and observations than were possible by me, considering the fact that I had the business part of the work to attend to as well as the scientific, will be necessary before the actual cause of the disease is determined.

### *Symptoms.*

This affection appears in two forms, an acute and a chronic or subacute. In the acute form the animal may be attacked suddenly, constipation is observed, there may or may not be diarrhœa. The temperature rises from 103° to 104° or 105°. The pulse is rapid and weak, 60 to 80 per minute. The breathing becomes hurried, and it will lie down or stand with a stupid look on the countenance and a peculiar glassy brightness of the eye. The head is protruded and she appears stupid; in a few cases I have observed symptoms of abdominal pain manifested by the looking back at the flank and heaving of the belly and sometimes straining, such cases will last from three to ten days. Delirium may sometimes be observed, but it is comparatively rare.

In the chronic form the disease runs a longer course and the symptoms are slower in development.

It shows itself in the majority of cases at first as constipation, this is followed after a few days by diarrhœa which gradually becomes copious and watery in consistence. It is of a peculiar dark tarry brown colour emitting a peculiar smell which is easily distinguishable, accompanying this there will be found, though not always, a peculiar dungy smell and taste in the milk, which is made more manifest on adding boiling water. In advanced cases the same odour is exhaled through the skin and the animal may be detected at a considerable distance.

The animal gradually loses her appetite, rumination is interrupted, and it loses flesh more or less rapidly. The coat is observed to become rough and there is an unthrifty and hidebound look; the hair standing erect, it hangs its head and there is a heavy dull expression on the face, at the same time there is observed to be a peculiar glassy brightness of the eye which is staring. Sometimes delirium ensues and the animal attacks any person or animal within reach or wanders off into the woods and has been known to throw itself into the sea; these symptoms are more particularly observed in cases where there is much peritoneal effusion.

The disease, however, generally runs a more gradual course. The diarrhœa gradually increases till it is watery. It loses flesh, becomes weaker day by day, is often seen staggering about the fields, seeks isolation and shelter from the heat, wanders off into the woods, where it may be found, in a shaded place, lying with its head stretched out, and if approached takes little or no notice, and gradually sinks and dies in the stable, or is found dead in the fields or woods.

The temperature is at first elevated, but during the course of the disease it may be found normal. In the first stages the temperature may be 103° to 104°, which, after a few days, when the diarrhœa sets in, falls to normal, and may remain so till before death, when it rises to 105° to 106°. The pulse, in chronic cases, ranges from 45 to 80, and is very weak, and in long standing cases is found to have a thready character. The respirations are not much changed, except where there is much peritoneal effusion, when they are hurried.

*Post-mortem Appearances.*

I have made upwards of forty *post-mortem* examinations of animals, which have died, or were slaughtered, as suffering from this disease. The same general appearances are found in all cases. One case may be taken as typical. The *post mortem* was performed by Professor Osler and myself. The animal, a cow, four years old, belonging to Mr. Thos. Millar, of Millbank Farm, near Pictou; she was examined before death, and presented the general symptoms already described; she was so weak as to be unable to stand, and had to be dragged on a sled to the field, where she was killed by concussion and bleeding. On removing the skin some slight ecchymosis was observable; the general muscular tissue was pale. On opening the abdominal cavity, several gallons of a limpid straw or urine coloured serum, without odour, were found in the peritoneal cavity. The omentum was somewhat infiltrated with serum. There was much gelatinous infiltration in the gastric omentum and the mesentery was infiltrated throughout the whole course of the intestines, and somewhat ecchymotic.

The *Paunch* showed a large quantity of undigested food, and in the mucous membrane at the junction with the reticulum, there were found between the papillæ a large number of flukes (*Amphistoma conicum*). The mucous membrane appeared otherwise healthy. The *reticulum* showed no changes.

The mucous membrane of the manyplies was dry, and the food caked. No signs of inflammation were to be observed. The abomasum contained some food; the entire mucous membrane was elevated into irregular folds, and had a watery infiltrated look; it was very thin and separated from the muscular coat by an enormously thickened and infiltrated submucosa, $1\frac{1}{4}$ inch in thickness, due to an infiltration of serum, which could be readily squeezed out. The membrane was soft and easily torn. No congestion was observed; the vessels were empty; the muscularis looked natural.

The *Small Intestines* contained a brownish serous fluid; the mucous membrane was soft, but otherwise showed no signs of change.

The *Large Intestines* contained a quantity of brownish green soft fæces, more consistent towards the rectum. The mucous membrane showed no change. The mesentery here was intensely thickened with gelatinous infiltration.

The *Liver* had a yellowish tinge, showing *fatty degeneration.*

The *Gall Bladder* contained an average amount of greenish-coloured bile, the ducts were clean.

The *Pancreas* was normal.

The *Spleen* showed no change.

The *Kidneys* were healthy looking.

The *Uterus* contained a fœtus two months old.

The *Ovary* contained a corpus luteum.

The *Bladder* contained a small quantity of normal looking urine; the walls were healthy.

The *Heart* contained a small quantity of fluid blood, and showed slight sub-pericardial ecchymosis; the valves were healthy, and the walls showed no signs of change.

The *Aorta* was free.

The *Lungs* were normal with slight areas of natural collapse and the bronchi were free.

The thoracic duct was free.

The brain showed no effusion and was otherwise healthy.

*Microscopical.*

The *Peritoneal Serum* on microscopical examination showed:

(1). A few red corpuscles.

(2). Leucocytes.

(3). Numerous small refractile bodies just within the limits of a No. 9 glass; they showed molecular movements.

The *Blood* showed:

(1). Crenation of the red blood corpuscles.

(2). A number of granular masses; no micro-organisms were to be observed.

The *Intestinal Fluid* from the small intestines when placed in a conical glass settled into a heavy deposit, and a brownish turbid supernatant liquid; the latter on examination was found to be swarming with various forms of organisms, among which were recognised:

(1). Ovoid bodies singly or arranged in chains, and containing towards one end a prominent highly refractile body.

(2). Bacilli either single or with one joint, resembling closely the Bacillus of Anthrax or the *Bacillus subtilis* of hay infusion.

(3). Leucocytes in considerable number; none of these organisms had motion. The liver showed fatty changes only. The spleen showed the presence of small micrococci-like bodies; the corpuscles were normal.

The Mesenteric glands show many small granular bodies.

These examinations show a diseased condition of the system, and the presence of certain bodies in the fluids

with which further and more accurate experiment is necessary.

*Spread of the Disease.*

I have not been able to make any accurate observations as to the means by which this disease is spread. But that every facility has hitherto been given is abundantly shown by the fact that it has been the common custom to allow animals which were sick of the disease to wander off into the woods or on the roadside, there to die and lie unburied for months. I would draw your attention to the fact that this country is very poorly off for fencing, there being very few farms which are completely fenced, and many are without fences at all except for grain, consequently the cattle of whole districts graze in common, and in this way the whole district becomes infected should one animal take the disease. This is a subject which should be brought to the notice of the proper authorities, and the laws with regard to fencing properly enforced.

*The Use of the Beef and Milk.*

The use of the beef and milk of animals suffering from this disease is to be condemned, in common with that of animals suffering from any disease whatever.

I have, however, to report that I have made inquiries in all parts of the county, but have been unable to find any case in which disease in human beings could be traced in any way to the use of the beef and milk of cattle suffering from the Pictou cattle disease, although I have known the milk to be used for a considerable time after the animal was known to be sick.

In concluding my Report I would express a hope that, while the measures adopted this season have been successful in completely stamping it out, yet as, from the fact that a number of farms on which the disease was present in 1881, have not reported any cases of it this season, and an outbreak may be anticipated where the sanitary measures have been neglected or imperfectly carried out, in the interests of the farmers of the County of Pictou as well as the country at large, the measures may be continued to a certain extent during the coming winter, and in a modified form during the ensuing summer. I am of the opinion that this disease can be completely stamped out in another season.

In the carrying out of my instructions I have to acknowledge valuable assistance rendered by John McDougall, Esq., M.P., Mr. David Matheson, of Pictou, and others, and also the courtesy received from the farmers generally with whom

I came in contact in performing what was often a disagreeable duty.

In conclusion I have to report that the duties of the Appraisers were performed by Messrs. Caswell and Grant in a highly satisfactory manner, as were also the duties of Quarantine Officers by Messrs. Fraser, McQueen, Grant, and McKinnon.

I have the honour to be, Sir,
Your obedient servant,
WILLIAM MCEACHRAN,
*Veterinary Inspector.*

The Honorable
The Minister of Agriculture,
Ottawa."

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"REPORT ON PICTOU CATTLE DISEASE INVESTIGATIONS.

By PROFESSOR WM. OSLER, M.D., M.R.C.P.L.

McGILL COLLEGE,
MONTREAL, 31*st December*, 1882.

SIR,—Pursuant to instructions received from the Department of Agriculture, I proceeded to Pictou in September last, and in conjunction with Dr. William McEachran, the resident Inspector, made such observations upon the disease as the limited time at my disposal permitted. Unfortunately for my purpose I arrived when there were very few animals sick, but we were able to institute certain experiments, the results of which have a bearing on some points in connection with the disease.

My personal experience and the record of experiments are as follows:

1 Cow, aged 4, belonging to Mr. Thomas Millar, Millbank Farm, Pictou, who says he lost one animal last spring. Has a herd of seven, all of which were taken to quarantine. Animal calved in June; took the bull on the 22nd; appeared quite well until September 9th, when the disease began by a copious diarrhœa, for which she was given fish oil and soot. Seen by Dr. Wm. McEachran on the 13th, temperature $101\frac{2}{5}°$; was standing up; was scouring and presented the marked features of the disease—staring, brilliant eyes, rough coat, and general look of sickness, and peculiar taste of the milk. When seen in the afternoon, temperature 101°, dulness in lower abdominal region; respirations and pulse slightly increased, latter 80, thready.

On Thursday 15th, found her lying down and so weak that she could not rise up, was evidently sinking fast. Respiration 60.

Killed by slight blow on head and bleeding. Blood of good colour, not black or tarry. *Skin*, rough hair; in subcutaneous tissue about mammary region a few ecchymoses. *Abdomen*, several gallons of brownish-yellow fluid flowed away—a little turbid, but with no shreds—general peritoneal surface smooth. *Omentum*, thickened by an infiltration of the tissue, and in the vicinity of the vessels there were numerous small ecchymoses. On stripping off this membrance the folds and grooves about the stomach presented a swollen appearance from the gelatinous infiltration. At one end of the many plies there was a clot in the peritoneal tissue the size of an egg.

*Paunch* contained a large mass of food mixed with a good deal of liquid. Membrane presented no special change; towards the reticulum was a patch in which thirty or forty amphistomes were attached.

*Reticulum* normal. *Manyplies* large; the food between the layers dry and caked, particularly towards the periphery.

*Rennet* contained food. The mucosa in its entire extent was elevated and formed irregular folds. On section this was found to be due to the uniform infiltration of the submucosa with a gelatinous substance which formed a layer from one half to one and a half inches in depth, quite clear; vessels not injected. The mucosa itself seemed pale and turbid, not the normal tint. The muscularis showed no change; the peritoneum was smooth, but in the folds much infiltrated. After section, the serum partially drained out of the submucosa. This condition was confined to the fourth stomach and did not extend to the duodenum.

*Small intestines* contained dark brown liquid fæces; mucous membrane pale, but presented no special change. Muscularis and serosa normal.

*Large bowel* contained a quantity of brownish-green soft fæces, which became more consistent towards the rectum. *Mesentery* was everywhere thickened and infiltrated with serum, though not to the extent of the omentum. It was congested and presented innumerable ecchymoses.

*Spleen* thin and small, on section natural looking.

*Liver* a little pale, evidently fatty; gall bladder contained a normal quantity of bile. Vessels and duct slit open and found healthy.

*Pancreas* looked normal.

*Kidneys* of good colour and consistence; no congestion. Bladder full of urine.

*Uterus* contained a two months' fœtus.

*Heart* contained but little blood; valves healthy, numerous subendocardial ecchymoses in the left ventricle. Muscle substance pale.

*Lungs* crepitant, with a few scattered patches of collapse; bronchi free.

*Aorta and thoracic duct* slit open; no change.

*Brain* presented sub-pial extravasation in the left hemisphere. Substance healthy.

*Microscopical examination* conducted two and a half hours after the *post mortem*.

*Blood*, from left auricle had clotted; corpuscles crenated but natural looking; no micro-organisms.

*Peritoneal fluid* contained leucocytes and red corpuscles, with a few small, highly refractile bodies visible with No. 9 Hartnack.

*Spleen* tissue normal. Thickened *mesentery* presented increase in interstitial leucocytes, and many of the fixed corpuscles appear swollen.

*Mesenteric glands* a little swollen; cells normal.

*Liver* cells very fatty; no further change.

*Stomach*.—The glands of the mucosa in teased specimens were very distinct, easily isolated, and the epithelial elements very plain; protoplasm granular. The submucous infiltration consisted of the separated and swollen connective tissue fibres with occasional leucocytes.

*Intestinal fluid*, when left to stand in conical glass separated into a small layer of brown sediment and a turbid brownish fluid. A drop of this under the microscope revealed the existence of many micro-organisms, none of which were motile of form; present there were (1) small round bodies, micrococci; (2) ovoid bacteria, either single or in chains of two, three or four; very many of these contain at one end a small, bright, highly refractile body (a spore); (3) rod shaped Bacilli, tolerably abundant, either in single bits or double, the joint being somewhat bent. They resemble clearly the *B. subtilis* or *anthracis*.

Food particles, &c., were in abundance, but nothing else of special note.

II. Quarantine animal, No. 59.—Steer, aged about fifteen months. Belonged to K. Forbes, of Green Hill, Pic. Co. Entered into quarantine 21st August, apparently healthy. Had come from a farm on which, in the summer of 1881, seven head were lost. In the spring of 1882, five head

were lost, one of which had been slaughtered by order of Inspector. This animal was seen by Dr. W. McEachran last summer, and was then ill; she seemed to recover, calved, and after it did not thrive and got weaker; was ordered to be killed. An undoubted case.

On August 27th, copious diarrhœa; in evening, very weak and staggering; was placed in hospital, and ordered to be fed and treated with Tr. Ferri Mur. and Pot. Iodii. 3i; Tr. Gent. Co. 3g., aqua add 0g m. et n.

For the first three or four days the animal fell away rapidly, got very emaciated, did not eat; temperature, taken daily, ranged from 103° to 104°. Then began to pick up, and bowels improved, though the temperature kept up. Medicines stopped on 9th September; fæces consistent; appetite good, though looked unthrifty; hair rough.

From 13th, temperature was as follows: 13th, E. $103\frac{1}{5}°$; 14th, M., $102\frac{7}{5}°$; E., $102\frac{7}{5}°$; 15th, M., 102°; E., $102\frac{4}{7}°$; 16th, M., $102\frac{2}{5}°$; E., $102\frac{2}{5}°$; 17th, M., $102\frac{2}{5}°$; E., $102\frac{3}{5}°$.

18th, killed by concussion and bleeding.

*Abdomen.*—Small quantity of peritoneal fluid, omentum natural; no subperitoneal effusion; no gelatinous infiltration. Lymph glands at back of abdomen deeply injected.

*Stomach.*—4th contains food; normal looking; digestion going on; membrane clear, no infiltration. 3rd, normal. 2nd presents no change.

*Paunch.*—Full of food; looks quite healthy; about two dozen amphistomes in usual position.

*Spleen.*—Firm and normal.

*Intestines* slit up; a few solitary glands look prominent; otherwise no change.

*In cæcum.*—Half a dozen whip worms; fæces normal.

*Kidneys.*—Healthy.

*Liver.*—Normal; nothing in portal vessels or in bile ducts; gall bladder moderately full.

*Thoracic viscera* perfectly normal.

*Thoracic* duct and aorta healthy.

III. No. 23.—Heifer, well bred; aged fifteen months; came from a farm which has been badly affected; three lost this season, among which was her mother; entered quarantine on 14th of August; about 22nd August became unthrifty; did not look well; hair rough; looked thin; had staring eye; appetite failed; did not ruminate; copious diarrhœa and very weak; temperature for a week ranged about 104°; she got the Ferrum and Pot Iodid; put in hospital after first week, temperature 102°; medicines stopped on 9th September; fæces consistent; she appeared

hide bound and rough (she was very sleek); temperature range from 13th, E., 102$\frac{2}{5}$°; 14th, M., 105$\frac{2}{5}$°; E., 102$\frac{3}{5}$°; 15th, M., 102$\frac{2}{5}$°; E. do.; 16th, M., 102$\frac{3}{5}$; E., 103°; 17th, M., 103°; E., 103°. 18th, killed by concussion and bleeding; external appearance normal; in abdomen no infiltration of omentum or peritoneum; no change in any of the abdominal viscera; the paunch had about one dozen amphistomes; no change in any of the thoracic organs.

IV. Quarantine animal, No. 76.—Cow, aged about seven, belonging to Louchlin McInnes; there had never been any disease on his farm; was placed on the 14th of August with the suspected cattle (his farm was the quarantine); on the 20th, Dr. McEachran's attention was called to her as being loose in the bowels; not very copious; she was allowed to run for another day when she was thought ill enough to put in hospital; the milk almost ceased; was treated in same way; her hair was rough and eye bright; abdomen very large; temperature for the first week, 102°, 104°; medicines seemed to give her great relief; on third day much better; medicines stopped 9th September; seemed better; coat a little rough; fed well; on 19th killed; abdomen greatly distended; paunch very large; about a pint of peritoneal fluid; paunch full of large mass of half macerated food; membrane normal; no amphistomes; other viscera normal; no trace of any affection in abdominal or thoracic organs.

Quarantine animal 62.—Cow, aged three, from the farm of Hugh Harris, of the town Gut. He had lost two this season; one died and one destroyed by order of Inspector. Entered quarantine on 27th of August, calved on 22nd August. On September 3rd was observed to be unthrifty; loose, coat staining, appetite had failed, was ordered to hospital, where she was given only wheat-heads. She seemed to improve, diarrhœa was only for three days, not very bad. Temperature 104° when she went to hospital and continued at that for three days. No change noticed, but looked out of sorts, coat rough, eyes bright.

Killed 19th September by concussion.

Paunch full, omentum clear, no infiltration, no affection of stomach or intestines, perfectly clear and natural looking. Amphistomes in numbers in usual site; half a dozen sclerostomes in small bowel.

Heart and lungs normal.

Cow the property of William Wylie. A well marked case; ill about ten days. Killed by concussion.

*Post mortem* lesions identical with those of case 1 (cow of Thomas Millar's).

Experiment No. 1.—With peritoneal fluid from Millar's cow (case 1) inoculated a calf (No. 74) four months old, by incision and put the clot of the serum beneath the skin.

On the 16th, 17th, and 18th no change; no fever; Dr. McEachran reports that the animal was kept under continuous observation until 2nd December. There was some elevation of temperature during the first week but no sign of the disease appeared; at the *post mortem* (December 2nd) there were no special lesions.

II. 15th September. No. 75. Calf, injected hypodermically half drachm of intestinal fluid from Mr. Millar's cow.

16th, 17th, and 18th.—No special change; no fever.

Dr. McEachran reports that the animal was kept under continuous observation until 2nd December; the temperature and pulse taken night and morning. There was slight septic fever for a few days, but it passed off, and the animal appeared in its usual health. No changes noticed at the *post mortem*.

III. 15th September, 1882. Sheep inoculated with intestinal fluid from Mr. Millar's cow.

16th, 17th, and 18th.—No change.

Dr. McEachran reports that a careful record was also kept of this animal for over two months and a half, but it showed no signs of disease beyond slight febrile disturbance a few days after the inoculation.

IV. 19th September, 1881.—Two year old steer was fed on "Ragwort," or "Stinking Willie," about a half of a pound daily, chopped up and mixed with bran as a mash.

V. A two-year-old heifer was treated in the same way. Dr. McEachran reports that the feeding was continued until 2nd December. No appearance of the disease during this period, and a *post mortem* on the heifer showed the organs to be in a perfectly healthy condition.

VI. 20th September, 1882.—A heifer two years old, was placed in the shed, on the property of Mr. Thomas Millar, in which the cow, reported as case 1, was ill for some days, and thoroughly saturated the straw and earth with her excreta. Kept until 6th December; remained in good health until date, when she was sent to the quarantine.

*General considerations.*—In spite of the numerous investigations which have been made, we are still in the dark as to the true nature of this offection. In justice, however, to the gentlemen who have pursued these inquiries, it must be remarked that while the measures taken have been admirably adapted to the eradication of the disease, they have not

been altogether favourable to its scientific investigation. It would have been better if an experimental station had been established at first, and those data obtained which are absolutely essential before a positive opinion can be given as to nature of any disease.

It would appear tolerably certain that the affection is not due to any poisonous substances in the food or drink, but to the existence of some special—in this instance, unknown—contagion which has got established in the region, and find there suitable conditions for its maintenance and development. Experiments IV and V effectually dispose of the popular notion that it is due to the *Senecio Jacobea*, or Ragwort.

To the questions is it inoculable? is it infectious? is it contagious? we can give but imperfect answers, based on insufficient evidence. Experiments I and II, appear to show that the disease is not directly inoculable, at least with the peritoneal fluid or the characteristic intestinal contents, but the animals used were young and may not have been susceptible, so that further experiments alone can determine this point. Neither the infectious nor contagious nature has been satisfactorily, *i.e.* scientifically demonstrated, though in the establishment of quarantine and in the measures taken for stamping out the affection it was very properly assumed to be both. That it is infectious appears probable from the way in which it has broken out in successive years in certain farms and not on others, even adjacent; as if special localities had become infected. The erection of new sheds and the thorough disinfection of yards have eradicated the disease on some farms. Such facts can be best explained on the supposition that the poison attaches itself, *i.e.* infects localities which have been contaminated by sick animals, and from time to time, as suitable conditions arise, fresh outbreaks occur. Indeed, the way in which this disease has haunted Pictou County, and the way in which sporadic cases or groups of them have appeared at intervals and tend to recur on farms where it once has got a foothold, reminds one strongly of the records of anthrax districts in some countries. Year after year in such regions cases occur, varying in intensity and in the number of animals affected, not wide-spread enough to destroy all the cattle, but constantly kept alive and entailing great loss on the farmers.

Experiment VI, in which a healthy beast was in a highly infected shed and remained well for over two and a half months is against a high degree of infection, but it may be

that the period of incubation extends over several months, or the animal was one not susceptible to the poison. This is a circumstance to be borne in mind, and is one amply illustrated in the history of many diseases even of a very catching kind. It is rare, except in very severe epizootics, for all the animals in a herd to be affected; many escape, and so in this Pictou disease the susceptibility has been limited. Thus in Professor McEachran's Report (1881), it is stated that during the season only nine of the 200 cows of the town of Pictou, and only two of the 200 animals of New Glasgow died of the disease, yet these animals freely intermingled and frequented the same pastures.

The contagiousness is still more doubtful. In the town cattle, the sick and healthy animals have been allowed to roam together, and yet, as the figures just quoted show, comparatively few caught the disease. Some of the farmers I spoke with were very positive about the contagious nature, but the facts already in previous Reports show that it must be slight and not a marked feature. The slow way in which it has spread is also against a high degree of contagion.

I know of but one affection to which the disease has certain points of resemblance, and that is the intestinal form of anthrax *Mycosis intestinalis*. In this remarkable disease the digestive canal is chiefly involved, and there are œdematous, infiltrations, hæmorrhages and peritoneal effusions, just as occur in the Pictou cattle, but the characteristic *bacilli* are found not only in the intestine, but in the mesenteric blood vessels, and in the glands. In Millar's cow (Case 1) *bacilli*, not to be distinguished from those of anthrax, were tolerably abundant in the intestinal contents, and in the mucosa, but none were found in submucous infiltrations, in the blood vessels or in the swollen mesenteric glands. In the other typical case (VI) the *post mortem* took place on the day I had to leave, and I had not an opportunity of examining the intestinal contents when fresh.

I have the honour to be, Sir,

Your obedient servant,

WM. OSLER.

The Honorable
The Minister of Agriculture,
Ottawa."

## COLIC AMONGST HORSES IN INDIA.

By Veterinary Surgeon First Class, W. S. Adams, Remount Depôt, Oossoor.

[Extracted from the *Quarterly Journal of Veterinary Science* in India.]

Abdominal diseases are common amongst horses in India, therefore the subject must be one of interest to those in charge of Government horses as well as to private horse-owners. An interchange of views and experience on the subject will be beneficial to those interested in the management of horses in this country. I therefore offer this paper on the subject of "Colic amongst Horses in India.

All diseases of the horse causing symptoms of abdominal pain are usually reported as "Colic." If "Colic" may be taken to mean pain in the abdominal viscera, due to some disturbance of the digestive functions, the term may be accepted, and it is this form of abdominal disease of which I wish to write.

I shall not in this paper follow the usual manner of dividing colic into two classes—spasmodic and flatulent—as, although symptoms shown may differ, and special cases may require some modification in the treatment, I am of opinion that the original cause of each class of colic is similar, but in some instances, owing to the nature of the food or peculiar state of the ingesta, as soon as there is any interruption of the digestive process, fermentation takes place and gas is evolved, complicating the disease and rendering the restoration of the digestive function more difficult.

The ordinary symptoms of abdominal pain shown by the horse are so well known by all in charge of horses that it would be superfluous on my part to lengthen this paper by giving a description of them. I will therefore at once proceed to the

Cause.—The causes of derangement of the digestive functions may be numerous, but from my experience it is most frequently due to the presence of some irritant in the intestinal canal. The physiological action of irritants in causing colic is of two kinds.

1st.—An ordinary irritant, which increases the peristaltic movements of the intestines, producing laxa- of the bowels, or perhaps purgation.

2nd.—An extraordinary irritant, causing arrestation of the peristalsis. I will here quote from Kirke's 'Physiology,' 4th edition, page 268: "Violent or

other irritation stops the movement apparently by exhaustiug the nervous influence, and thus paralysing the muscular tissue."

Colic caused by the first (or ordinary) irritation to the bowels is most frequently met with during the rainy season, when the grass-cutters *will* bring some harsh unwholesome grass with their bundles, for they can at this time collect a large quantity of quickly grown stuff with very little labour, and make up their bundles to the specified weight. This grass soon sours, and contain a minimum of nutrition. Colic thus produced is usually associated with purgation. In my experience "colic" is more frequently due to the second cause, that is, "violent irritation, causing arrestation of the peristaltic movements," and is chiefly caused by coarse and fibrous or dirty grass, or by the horse himself, from morbid appetite, swallowing quantities of dirt, sand, or gravel.

The coarse fibrous grasses is usually brought by the grass-cutters, during the early rains, when they collect their daily bundles in a short time by following the ploughs, which are then at work breaking up and cleaning the ground. The bundles thus collected are chiefly made up of harsh roots, which have laid in the ground during the hot weather, although, no doubt, in these bundles are some of the true hurriali roots, which, when they have grown, are succulent and nutritious, but taken out of the ground are fibrous and indigestible. And with this grass is a very large proportion of the true fibrous roots, in appearance and texture very like cuscus, from which tatties are made, and I should think containing as little nutritive matter and about equally indigestible. These bundles are often passed as "root grass," it not being always understood that it is not the true "root" that should be required, but that the underground stems or rhizomes of the hurriali alone should be passed as "root" grass. At this season of the year, the early rains, cases of colic are very numerous, and nearly all are due to this erroneously called root grass. I have specimens at present in my possession of large masses of harsh roots which had accumulated in the intestines, and which the intestinal action was unable to pass on.

Another frequent cause of colic in this country is the dirty grass sometimes given to horses, a bundle of grass-cutters' grass, weghing say from 30 to 40 lbs., often containing as much as from 1 to 2 lbs. of dirt, sand, or gravel. Grass-cutters are very properly forbidden to wash their bundles before producing them for inspection. This is right, as there is nothing to prevent them from washing them in the

most foul pools. However, as the grass, from the manner in which it is gathered, must contain a quantity of dirt, appliances should be at hand for the purpose of cleansing it before its issue. If the grass be dried before being given to the horses, most of the dirt can be beaten or taken out.

Chenna or coolthee should be thoroughly cleansed from all sand or gravel, but from my experience I do not think, if the grain is cleansed with ordinary care, it is with the gram that the large accumulations of sand gravel that are sometimes found in the intestines after death are taken in. I consider that in the majority of cases the sand and gravel are either taken in with the grass or eaten wholesale by the horse from morbid appetite. I am aware that this opinion is not generally concurred in, and I have known gram from a feed of which a few grains of sand and gravel have been extracted by means of careful washing, condemned, and at the same time grass issed that contained quantities of dirt and sand. I admit that it is at all times of the greatest importance that the gram should be free from all impurities, yet I am of opinion that the small amount taken in in the feed would be less likely to accumulate in the intestines than that taken in wholesale from morbid appetite or in the quantities I have shown frequently to be present in the grass-cutters' bundles. With regard to the eating of earth, sand, or gravel, from morbid appetite, I think this is of much more frequent occurrence than is usually admitted. In 1877 I sent a communication to the *Veterinary Journal* (vol. v, p. 401), giving some of my experiences of sand-eating amongst horses in this country. As it bears upon this subject, I will refer to the remarkable instances I then quoted. A number of fresh walers were purchased in Madras and sent to the Depot. Owing to the scarcity of straw for bedding (it was during the great famine) these horses had been given sea-sand to lie on. One horse died on his way to the Depot, and a large quantity of sea-sand was on *post-mortem* examination found in the intestines. Shortly after their arrival several of these horses were admitted into the sick lines, showing symptoms of abdominal pain, at the same time voiding quantities of of sand. One horse died, and 22 lbs. of sand were found in his colon. There were three other horses placed under treatment for subacute enteritis, and before leaving the sick lines they passed respectively $17\frac{1}{2}$, $9\frac{1}{2}$, and $3\frac{3}{4}$ lbs. of sand. The horses of this batch did not thrive, and from amongst them were frequent cases of colic, usually associated with the passing of sand. The sand was doubtless taken in by these ill-conditioned horses from morbid appetite, and probably on

account of the salt it contained. The cases above quoted may be exceptional but are instructive, showing as they do the risk attached to the use of sea-sand in lieu of bedding. I have also met with cases of horses bedded with river-sand eating it wholesale and dying of enteritis, large quantities of sand being found in the intestines *post mortem*. Instances of horses eating the gravel at their pickets and gnawing the walls of their stalls are in the experience of every one.

I now go on to another generally accepted cause, and that is "Water." My experience is that this is seldom a cause of colic in this country, perhaps the reason of which is that water, as given to horses in this country, is seldom perfectly cold, and is, I think, usually soft.

In this tropical climate I think that more harm is often caused by not ensuring horses their full supply of water than by their ever getting more than is sufficient. I have had horses sent to the sick lines, refusing feed, not being able to detect anything wrong. I have ordered them to be watered, and the feeds to be put on again in half an hour. I have then frequently found them eat it.

It is a generally understood maxim that a horse should not be watered when he is "hot;" this is correct, if it is understood that a horse should not be taken to the watering trough in a state of perspiration after exertion, but I have heard it laid down that a horse should not be watered till he is dry, the fact being overlooked that although the coat may not be absolutely dry for some time longer, the horse has ceased to perspire, the system is already cool, and the horse would be refreshed by water. The time for watering is correctly laid down to be about half an hour before feeding. To water horses shortly after feeding is contrary to the laws of the physiological action of the digestive system of the horse, for water taken by the horse will pass through the stomach into the intestines, and if the stomach at the time of watering contains food a portion will be carried on into the intestines, in an undigested state; it would then act as an irritant, and be a probable source of colic. I am informed that it was formerly the custom in this country to water troop horses at the end of stable hour, after feed, and that the custom is still carried out in some of the irregular troops in the native States, and that no ill-effects have been observed. This I do not understand, and, in noticing the practice, I would urge the propriety of always watering before feed. There are doubtless other causes of colic. I may mention the following.

In wet cold weather, frequent cases of colic occur amongst horses that are exposed; the require but little treatment,

rubbing dry, a warm stall, dry bed and blanket, and perhaps a warm drink, being often all that is required.

Cribbiters and windsuckers are notoriously the frequent subjects of colic, the cause being indigestion produced by quantities of air being swallowed and inflating the stomach and intestines, weakening their powers, and temporarily paralysing them.

Some horses, especially ill-conditioned weakly animals, are peculiarly subject to attacks of colic, due to want of tone of the digestive system. These horses require to be carefully fed on good food easy of digestion, and as the horses gain in strength and condition they become less liable to the attacks.

Habitual ravenous feeders are also frequently the subjects of colic, swallowing their food before it has been properly masticated and prepared for passage into the stomach. Some horses, also, after eating their full ration of grass, will eat their bed straw, loading the stomach and intestines with a quantity of food not easy of digestion, which acting as an extraordinary irritant causes arrestation of the digestive functions.

Overfed and underworked horses are the subjects of colic, more nutriment being taken into the system than can be assimilated. These cases are usually associated with diarrhœa and offensiveness of the fæces passed.

There are no doubt other causes of colic due to constitutional predisposition or errors in stable management, but I think I have said enough to show my opinion as to the general cause of colic in horses in this country.

I have throughout wished to confine my remarks to the subject of colic as defined by me at the commencement of this paper. I therefore do not intend to go into the untoward sequences of colic, such as enteritis, gastritis, rupture of the stomach or intestines, or rupture of the diaphragm, &c., I will therefore close this paper with a few remarks on the general treatment of colic.

Treatment.—The routine treatment for colic in vogue at the Remount Depot I had not seen till I came here. The practice was, I believe, introduced by Mr. James Thacker, who was the first veterinary surgeon appointed to this Depot. Its simplicity and success has recommended it to his successors, and it has been continued up to the present time.

When a horse is brought to the sick lines showing symptoms of abdominal pain, a very copious enema of cold water is administered; the horse is then walked till he has rejected it. He is then placed in a large loose box and well bedded down; usually in a short time the symptoms of pain pass

off; if they do not, a second enema is admistered. After this, should he continue in pain, the treatment is adapted to the symptoms shown. It is my practice, should the horse not be relieved after the second enema, to give a laxative dose of linseed oil, with or without the addition of a couple of drachms of aloes according to circumstances.

The success of this mode of treatment is undoubted, and I consider the *modus operandi* is this. The enema first relieves the patient by emptying the rectum of all fæces present, and the cold water acts secondarily as a stimulant to the muscular coats of the intestines, restoring the peristaltic action and inducing the removal of the offending material. Should this not be effected by the enema, the laxative acts in the same manner, and the symptoms of colic pass off, of of course, long before any effect of laxation of the bowels is perceptible. Should the patient be violent and show any excessive pain, I always give sedatives, and if there is flatulency I add the tincture of assafœtida. The ordinary stimulating colic draught is seldom given, except in protracted cases, as I think this is often unnecessary, and is therefore wasted. Some special cases may require special treatment, but this is briefly the treatment for colic which I adopt. In cases of colic the cause should always be looked for, both as a guide to any special treatment that may be required and as to measures to be adopted for the prevention of a recurrence of the attacks.

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## ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

Monthly Council, Wednesday, June 6th, 1883. Present, the Duke of Richmond and Gordon, K.G., President, in the chair.

### Veterinary Committee.

*Lord Egerton* (Chairman) presented the following report, drawn up by Professor Robertson, on the foot-and-mouth disease experiments which have for some time been carried out at the Royal Veterinary College on behalf of the Society:—

London, *May 25th*, 1883.

My Lords and Gentlemen,—In my report of the experiments which had been conducted with reference to communicability of the fever of foot-and-mouth disease, laid before the Committee in March, it was then stated that fresh animals had been obtained with a view of testing the effects of the direct conveyance into the blood-stream of the disease-bearing fluid of

the local lesions, the object being to determine whether a modified fever might be produced, which would afford protection against the natural form. This proposed experiment has been carried out, and, so far, with positive satisfactory results.

Two steers, which had been retained under observation long enough to satisfy us that they were not suffering from disease, had, at noon on the 31st March, injected into the left jugular vein of each three minims of the clear fluid removed from the vesicles of an infected animal previous to their rupture. On the evening of the following day both animals were feeding indifferently; there was, however, no appreciable disturbance, as indicated by rise of temperature, or acceleration of pulse. April 2nd.—Neither animal consumed more than half the usual morning meal; both appeared somewhat dull, pulse unaffected, but the internal temperature elevated one degree, as compared with what had been its normal standard for ten years previously. At noon the temperature reached its maximum, being in one 102·5° F., in the other 103·5° F. At this time also vesicles showed themselves on the visible mucous membranes. With one animal these were situated on the tongue, with the other on the muzzle; in neither case were they numerous or large. In two days following the appearance of these lesions, minute vesicles were detected around the coronets and interdigital spaces of both. At no time, from the period of inoculation, could any trace of the puncture of the vein be detected, nor was there any tenderness in the course of the vessel. During the time that local lesions gave indications that the fever had existed, both animals continued to feed well, and to ruminate regularly with no general disturbance, as evidenced in alteration of respiration, pulse, or internal temperature, with the exception of the elevation of the latter, noted from the second to the fourth.

Since the recovery of the steers from this induced attack of fever, two different attempts have been made to reinduce it by the employment of secretions from the actually suffering, in a manner similar to that by which the disease was implanted in previous animals, but without success.

The actual utility of those results may be questioned, seeing, although we may be able to induce fever of a more moderate type intra-venous injection of a variously charged fluid, it is not at all probable that the disease so induced will afford protection for a longer period against a second attack than is obtained by its development in the natural form. It is, however, deserving of a still further trial on a larger scale, particularly with pregnant animals, and such as are yielding milk. Should it in these instances be found that the fever so induced is less disposed to result in abortion, and less detrimental to the milk-secreting function, a considerable step may be regarded as having been gained in lessening the great monetary losses occasioned by this fever.

In order that such experiments shall be of value, they ought to be carried out in a large herd of cattle, and for a lengthened

period; but unfortunately at the present time neither the Royal Agricultural Society nor the Royal Veterinary College possess the facilities or the means of making these.

I have the honour to be, my Lords and Gentlemen,
Your obedient servant,
WM. ROBERTSON.

This report having been adopted,

*Mr. Geo. Wise* said he had thought it desirable to call the attention of the Council to a new disease amongst horses, from which he had himself been a sufferer. The disease was something similar to eczema in man; it was a skin disease, and amongst his own horses it began in the back, then went to the shoulders, and afterwards to the mane and tail. He believed that it came originally into this country with some horses from Canada, and he had chiefly heard of it in the neighbourhood of Brighton, and in the County of Surrey, where he now resided. He was afraid that veterinary surgeons understood very little about the disease, and therefore he might state that he had successfully used carbolic soap on the horses affected, as well as on a cat in the stable, which caught the disease, and the man who looked after the horses. One veterinary surgeon whom he had consulted told him that he had used acetic acid with similar success. Mr. Wise added that the reason why he brought the matter forward was that as a great many agricultural shows are now being held, exhibitors should warn their servants of the importance of always taking their own curry-combs and brushes with them, and never lending them to servants of other exhibitors, as he was convinced that the disease was sometimes communicated in consequence.

## CENTRAL VETERINARY MEDICAL SOCIETY.

AT the meeting of this Society on 3rd May, Mr. H. King Shaw took the chair, Messrs. W. F. Mulvey, of Bishop Auckland; D. Dudgeon, Sunderland; G. R. Dudgeon, J. Rowe, A. Broad, A. B. Daniel, H. W. Caton, G. Gray, C. Sheather, F. W. Wragg, J. Broad, Arthur Broad, and Thomas Moore also being present.

The discussion on the subject of Mr. Hunting's essay, "Bent Legs in Horses," was commenced by *Mr. Daniel*, who said he had had under his supervision the horses of the Tramway Company to which Mr. Hunting had alluded. They were shod according to an American system, the features of which were to fit the shoes cold, and to lower the heels that the frog might meet the ground. The lameness prevalent proceeded almost entirely from bruised heels; he did not, however, think that the percentage of bent legs from this cause was so great as had been

stated by the essayist. Another injurious part of the system was the absence of toe-clips, as the shoes were forced back upon the heels. He considered Mr. Hunting was quite right when he attributed bent legs to pain in the feet.

*Mr. Sheather* thought the number of bent legs due to pain below the knee was not so high, proportionately, as the essayist had said. The experience on which that opinion was founded was probably that of the tramway horses only. He knew numbers of horses with bent legs, though they were well shod and had no disease in the feet. In the instance given by Mr. Hunting the shoeing was undoubtedly bad, and failure could alone result from the carrying out of such principles; yet he did not think the bending of the legs was wholly due to the pain in the feet, even in cases where the style of shoe might conduce to bring it about. The American shoe was not so thick at the heels as the English, and therefore, he said, more strain was put upon the flexor muscles by their use. He alluded to the frequent strain upon the muscles in starting the heavy trams, and then drew attention to the fact that the flexor muscles received assistance in supporting the weight of the body from two "bracing" structures, a band of ligamentous tissue opposite the lower third of the radius, and a strong ligament just below the knee. To relieve strain upon the flexor muscles the horse bends his knee and allows these ligaments to take a great share of the weight. He had frequently found them thickened and sprained in bent-legged horses, and said it was matter of ordinary observation that horses to ease their limbs endeavoured to stand with their heels on higher ground than their toes, so as to relax the flexors. He had found tips injurious for the reason indicated.

*Mr. Broad* said Mr. Hunting deserved praise for throwing light on his subject, and showing what frequently might be a cause of bent legs; yet he did not think the majority of cases were attributable to corns or other lameness, but rather to overwork and continued muscular strain. He was not of opinion that bending of the knee would induce contraction of tendon; for contraction of tendon, or rather of muscle, to take place the heel would need to be raised, and that for a considerable time, without intervals of proper position. He had had his attention directed to many bent-legged horses whom work did not appear to distress, but in some instances, when the distortion was great and the erect position hardly ever assumed, he considered that work caused pain, through the unnatural position of the bones and great strain thrown on the ligaments of the joints.

*Mr. Gray* corroborated the essayist by saying that he had never seen a case in which there were corns of long-standing without bent legs supervening.

*Mr. Caton* thought that a very great point predisposing to bending of the limb was a weighty condition of body. He had observed its occurrence more among heavy full-conditioned horses Shoeing he did not look upon as a frequent cause of the de-

formity. He had seen many cases where horses were shod on the English principle with thick heels. Recovery from bent knees and contracted tendons was often seen after the horse had been sent to grass for two or three months, or worked upon the land. Of the curability of corns he was convinced, and quoted several instances.

*Mr. T. Moore* was of opinion that a distinction should be drawn between legs which are permanently bent and those which only suffer in that way temporarily; in the latter instance the cause may be foot disease, but in the permanent cases he would refer to the shoulder muscles for the origin of the defect. Bearing in mind that the muscles are the agents in preserving the straight condition of the limb, we should look to the extensor muscles for the seat of the mischief in very many cases. Bent legs were commonly seen, he said, in young horses from their being called upon to undergo excessive exertion before they were fit to endure it, and in high-stepping horses it was a frequent defect, the extensors having more work than the flexors, the balance of opposition between them was not maintained.

*Mr. Rowe* considered that the majority of bent-legged horses would be found to have sound feet, but that many acquired this defect as the result of bad shoeing. In cases of sprains and weakness about the fetlock, he said he had found great benefit derived from using a shoe with a very high "patten" heel.

*Mr. Shaw* said he had inspected the horses of the company alluded to, and bore witness to the faulty state of the method of shoeing in vogue, also to the number of corns and sandcracks seen. He thought that foot lameness and strain of the flexor muscles were each causes of bent legs, and with regard to the ability of these horses to do work, he should not consider it was a question of cruelty, unless in those instances where there was atrophy of the muscles of the shoulder. On the subject of corns he agreed with those who said, "Once a corn, always a corn." He had tried all methods of shoeing advocated for their relief without getting rid of them.

The discussion on the subject was continued and closed at a meeting of the Society on the 7th June. Mr. Sheather was voted to the chair, the President leaving the meeting early. Messrs. T. Moore, A. B. Daniel, R. Glover, H. W. Caton, W. Roots, A. Charles, and A. Broad were also present.

*Mr. Glover* said that in common with many of the Fellows he did not entirely agree with Mr. Hunting's opinion. A large per centage of cases of bent legs arise from causes other than injuries below the knee. He ascribed them to extraordinary "wear and tear," and to a wasting, under the strain of excessive work, of the triceps extensor brachii, these muscles being chiefly employed to keep the limb straight. Foot lameness he thought usually produced straightening of the fetlock and pasterns, and he had seen

ringbones frequently supervene on what he took to be cases of navicular disease, and the lameness had been attributed to the ossific formation only. He had noticed the horses bought for the company which had been referred to, and expressed the opinion that they would not stand the work, as they were long-legged, and hence predisposed to go over at the knees. He had no doubt that bad shoeing partly accounted for the prevalence of lameness in the feet, but he had no hesitation in saying that the repeated starting of the heavy tramcars by these lightly-built horses was the cause of their legs becoming bent.

*Mr. Daniel* said it was in fairness desirable to hear all that could be adduced against the theory of Mr. Hunting. Some had expressed ideas as to the part played by the muscles in producing bent legs, and now was brought forth a fresh reason, that the cause was atrophy of the triceps extensor as the result of excessive work. His own contention would be that excessive use of a muscle would tend to bring about a state of hypertrophy rather than wasting, as in the legs of a dancer. The essay touched upon a practical point; it was so common to hear the question, "What is the cause of my pony getting so bent in his forelegs?" and it behoved us, he said, to endeavour to account for it. Mr. Hunting's opinion was based upon observations carried over many years, embracing the inspection of numbers of horses—not one stud only, but several, both in London and the provinces. With regard to the class of horse used by the Tramway Company, he would observe that not only were American horses obtained, but many English and French also, and the smallest percentage of "groggy" horses was found among the American ones, although all were shod in the same way. On a tramway in Normandy, where similar horses were worked to many of those used here, the number of bent-kneed horses was only one per cent. in a stud of nine hundred; and in other companies here, where the ordinary method of shoeing was practised, the horses remained sound and straight in their limbs, though they were of the same class as those purchased by the company he had been attached to. He felt sure that the more extended our observations became the more it would be found that bent-legged horses were affected with corns.

A vote of thanks was unanimously accorded to Mr. Hunting for the essay contributed. ALFRED BROAD, *Hon. Sec.*

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## MIDLAND COUNTIES VETERINARY MEDICAL ASSOCIATION.

A MEETING of the above-named Association was held on the 4th of May at the Swan Hotel, Stafford. There was a good attendance of members.

Mr. Wm. Carless (President of the Association) occupied the chair. There were also present—Professors Pritchard and Walley, and Messrs. E. Stanley, D. Aitken, A. Hodgkins, G. Smith, E. Hodgkinson, W. Dale, H. D. Pritchard, F. Blakeway, F. W. Wragg, H. Collett, H. Olver, R. H. Cartwright, E. Price, jun., C. Hartley, A. Over, J. Coe, W. C. Ison, E. Meek, J. Bates, H. Stanley, E. Beddard, B. Freer, R. C. Trigger, L. C. Tipper, Hon. Sec., &c. There were also several visitors present.

The Secretary's and Treasurer's reports were read and approved, and *Mr. Blakeway* then gave notice that at the next meeting he would move that the sum of fifty guineas be voted from the funds of the Association towards the building fund of the Veterinary College.

On the motion of *Mr. Trigger* it was resolved that the resolution passed at the annual meeting at Stoke, appointing Mr. Blakeway a Life Governor of the Veterinary Benevolent and Defence Association in the room of the late Mr. Carless, be confirmed, it having been decided that it was not necessary that the county society should vote a second donation to the national association in order to be in a position to give effect to such resolution.

*Mr. Blakeway* having said a few words of acknowledgment,

The *President* delivered his inaugural address as follows :

Mr. Vice-Presidents and Gentlemen,—In delivering this inaugural address I feel it necessary in the first place to say that I esteem it no light honour to be selected by the members of the Midland Counties Veterinary Association to preside over their meetings.

I recognise in my election the expression of your conviction that I shall exercise my best endeavours to promote and uphold the interests of the Association which have been so carefully fostered and brought to a fruitful issue by my predecessors.

I hope, with the assistance of the Vice-Presidents and members, I shall be able to hand over the chair of office to my successor in at least as good a condition as when I received it.

This address must necessarily be a short one, from the two facts, that I have been unable from pressure of business to write a lengthy one, and from the anticipated pleasure we have of hearing a very interesting subject, well handled, as I feel sure it will be, by my esteemed friend Professor Walley, who has so generously offered to lecture to us on some of the diseases of the hock of the horse.

There are several past and pressing matters which I shall just allude to, more with a view to create thought than to pronounce an opinion thereon.

In the first place we have to congratulate ourselves upon the progress and improvement of the profession, and the rapid strides it has made during the last decade, and to thank those of its members who have so generously stood forward and gone

to so much expense and trouble to achieve such lasting benefits. Foremost amongst them I may mention the name of George Fleming, Esq., who deserves the lasting gratitude of every member of the profession.

We are on the eve of the first meeting of the National Veterinary Association, which is an outcome from the Congress held in London in 1881, and which I feel certain deserves the support of every member of the profession. If they cannot spare time to attend its meetings, they will, by the payment of 10s. 6d. annually, be entitled to receive a report of its transactions, and thereby benefit very considerably by its literature; at all events they will have the satisfaction of contributing to the support of a very laudable object.

I am very pleased to find that the exertions of our veterinary surgeons engaged in the recent campaign in Egypt have received such kindly recognition. This, I feel sure, will be a stimulus to good in future, should this country ever again need the services of our members in the battle-field.

I see reported in the *Veterinary Journal* for last month that the National Veterinary Benevolent and Mutual Defence Society held a special meeting at Manchester in February, whereat it was agreed to alter Rule 2, which sets at rest the matter which has been discussed at our last two meetings relative to the life governorship.

I am also in a position to congratulate that Society on its very satisfactory financial position, and hope that all members of the profession will subscribe to its funds, and thereby assist in its good work, especially the *benevolent* part of its work, for I feel sure that numerous cases occur where from death or accident a brother member is obliged to leave his family in a very dependent state. It is very pleasing to know that for a guinea a year we place the Society in a position to assuage and relieve a state of grief and misery which can only be realised when borne.

I am glad to find from the annual report of the Royal College of Veterinary Surgeons that we are to have a supplemental charter before long, and that one of the powers obtained by it is to impose a period of pupilage with a registered veterinary surgeon before admission as a member. This I am quite convinced has been long wanted, and I hope that it will be put in force soon as practicable; it is, in my humble opinion, very unfair to lead parents and guardians to believe that youths who have had no opportunity of learning the habits and conditions of our domesticated animals in health, or seen or assisted in their treatment when diseased, can be taken from school or from behind a counter, and by attending the lectures at the College be turned out into the world as fit and proper persons to practise the art and science of veterinary surgery. If you want to become perfect in any business you must begin at the beginning, and this I feel sure applies to veterinary students more, if possible, than to any other walk in life. We all know that so much is required by

the public from a veterinary surgeon; he must not only know his business, but he must by the way he goes about it be able to imbue his employers with the idea that he can do what he professes. So many young veterinary surgeons have to my knowledge drifted out of the profession after passing a first-class examination, simply because they could not get their living as country practitioners. This, I think, would all be obviated by forced pupilage if only for a couple of years. I say let them all be properly initiated.

I see Dr. Lyons, M.P., has been making a "home-rule" thrust by trying to induce Lord Spencer to grant a charter for a veterinary college in Ireland. I hope and believe his lordship will be equal to the occasion. If not for the good of the profession, I trust he will have more regard for the poor brutes who would suffer at the hands of the so-taught Irish veterinary surgeon.

We must congratulate ourselves upon the new board of examiners; it is very pleasing to know that it is at last in our power to find good men in our own ranks to examine the candidates for the diploma, without having to fall back on the medical profession, although we must be proud of the mutual good feeling that has always and I trust always will exist between the two bodies.

It is satisfactory to note that the examination committee have decided that there shall be two grades of subjects for students, the one obligatory, the other voluntary: this is certainly a step in the right direction.

I am sorry to see that the Royal Agricultural Society has decided to withhold the gold-medal prize for want of a sufficient number of competitors.

It was my intention to have made a few remarks on the Contagious Diseases (Animals) Act, but as it is likely to be so ably brought forward at the national meeting on the 8th (where I hope to meet you all), and as it will then be so well sifted, I will suffice by saying that to my mind the way in which the Act is carried out is very unsatisfactory.

Before concluding, there is one other matter I wish to bring to your notice, *i. e.* the selection of animals for breeding purposes. We are often asked to select a suitable horse as a sire, and it also often happens that we have an opportunity of persuading or dissuading clients and friends as to the desirability or otherwise of breeding from a particular mare. I hope we shall all agree to give such advice as will deter persons from breeding from mares that from their formation or some disease are likely to produce something that will be a source of loss and trouble rather than profit. We have frequent opportunities of doing good to the community at large in this way, especially at this particular time of the year. Also with regard to cows, if we have reason to suspect that an animal is related to a tuberculous stock, use every energy to induce the owner not to rear the offspring, especially if it be a bull, as the result of using such an

animal for a couple of years might very possibly be the ruin of the owner.

Apologising for the small amount of interesting matter I have been able to bring before you, and thanking you very heartily for your attendance here to-day, I beg to subscribe myself, gentlemen, very faithfully yours.

The President was heartily applauded at the conclusion of his remarks.

*Professor Walley* then proceeded to deliver a lecture on "The Principal Diseases of the Hock." He remarked at the outset that he might perhaps have chosen a subject of more general interest, but he thought that where he was addressing men who had so largely to do with the examination of horses for soundness, the subject of hock diseases must be of very great importance. It was a subject which had led perhaps to more controversy amongst veterinary surgeons than any other, and for that reason, if for no other, he thought it a good one to bring before them. They were perfectly well aware that of all the diseases of the hock the so-called bone spavin was the most important; and he referred very briefly to the anatomy of the joint in order to point out that they had in the peculiar arrangement of the bones a very good reason for the formation of bony deposits on the internal aspect of the joint. But while he desired to point out particularly with reference to the formation of these bones the existence of a very marked predisposing cause for spavin, he mentioned hereditary predisposition as another very strong cause, remarking that of all animals with which they had to deal the horse was the most predisposed to bony deposits, and especially of the hock. He considered that one of the greatest predisposing causes of spavin was the peculiar manner in which the weight was thrown upon the small cuneiform bones of the inside of the hock, the articulation here differing very materially from that on the outside of the joint. The pathology of disease might be summed up in one word—inflammation of the bone involved, resulting in the throwing out of a large quantity of bony matter upon the outside of the joint. The symptoms of the disease were, he supposed, quite familiar to all. In most cases there was lameness marked by one or two peculiarities. The first of these was that the lameness disappeared with exercise; then the horse was most lame on turning on to the sound leg. Again, they usually found the toe or the shoe more or less worn, and frequently the outside more worn than the inside, caused by the animal endeavouring to throw the weight upon the inside of the foot. The disease, however, frequently developed itself without lameness or other symptom by which the attendant could become acquainted with its existence; and this led him to say a word about the examination of the hock for the detection of spavin. He pointed out the rules observed in manipulating the joint for the purpose, observing that some twenty-

one or twenty-two years ago Edward Stanley demonstrated to them the best method, founded upon the anatomical arrangement of the bones to which he had referred. Notwithstanding that it might perhaps be considered "Tailorified," he thought they would sometimes be quite justified during their examination in taking a mould of the hocks. There was a difference between spavin and what was known as coarse hocks, and his rule in dealing with them was to contrast them one with the other, and take all the bones and the age of the horse into consideration. If they found all the bones in keeping, and those perfectly free from lameness, he thought they were justified in passing the animal sound; but, on the other hand, if they found one joint bigger than the other, even if the horse were apparently perfectly sound, they were not justified in passing him without a remark. In regard to a comparatively aged or an adult horse, the length of the guarantee he recommended in such cases might be much less than in the case of a young one. With regard to the treatment of the disease, it always came to one thing—the application of counter-irritation in some form or other. In firing he always took particular care to force the point of the iron well into the bony structure itself. Some people thought there was a likelihood of opening the joint, but it was extremely small, and practically it was annihilated, and they never need trouble about such a contingency. Tenotomy he considered perfectly useless except for certain splenic cases. After speaking of the difficulty which attended the treatment of spavin when it affected the subtarsal ligament, Prof. Walley went on to describe the characteristics of occult spavin. Although the cause of this disease was somewhat doubtful, he attributed its origin to the peculiar motion of the joint, and the consequent material interference with the blood supply in that region. They were aware that in regard to this form of the disease the lameness did not pass off with exercise. However they might manipulate, the animal would go perhaps more lame at the close of his journey than at the beginning. There was no enlargement of the joint, though there might be a certain amount of heat, and there must be pain on concussion, the evidence of which might be adduced by striking the bone or the bottom of the foot with a hammer. The treatment of occult spavin was the most difficult thing they had to deal with, firing, blistering, setoning, or plugging being alike unavailing in curing the lameness until they brought about anchylosis, which they were unable to do in all cases. From examination and investigation he was disposed to think that there was such a thing as gouty disease of the hock, and naturally heavy cart horses employed in town work were the animals most subject to it. As a possible means of arresting the ailment he recommended change of food and an application of iodine to the region affected. He then passed on to refer to bog spavin and thoroughpin, pointing out that they were separate and distinct diseases, and dwelling upon the importance of satis-

fying themselves before they proceeded to treat for bog spavin, that they had really to deal with the disease and not with thoroughpin. Bog spavin, he remarked, was frequently seen in young horses, sometimes almost in foals. There were dozens of colts which were found to be so affected at twelve months old, numbers at two years, and it was of very frequent occurrence at three years. They had therefore hereditary tendencies to consider in their treatment. It did not necessarily produce lameness in all cases, and the animal might last for years; but, as in a legal point of view, he was undoubtedly unsound, and was with severe work liable to fall lame at a sooner or later period, their old friend the special warranty for a certain period became of use to them. In the treatment of thoroughpin, as in the other cases he had named, counter-irritation formed their great stock in trade, although there were several other methods of dealing with it, such as the application of pressure, the injection of iodine, or the use of the seton. In his own practice he had been more successful with the last-named method than with any other means of cure. With regard to the seton, however, they must not expect any immediate result. Frequently months would elapse before they obtained any results. In the case of capped hock the use of the seton would in his opinion be more often found beneficial than any other mode of treatment they might adopt. In ordinary cases it was enough to open the part and deal with it as an ordinary wound. The last disease he referred to was curb, in regard to the definition of which he differed somewhat from Mr. Wilkinson. In the great majority of cases curb was due to nothing more nor less than a thickening of the ligament, which of all others, from its position, was the least liable to strain of any kind. He pointed out the characteristics of the disease, maintaining that they were not to take as curb every little enlargement that might occur in the same region. Cases had come under his notice in which injury from the horse striking the joint, or where there had been a little loose excrescence which could have been removed with a stroke of the knife had been attributed to curb. Its treatment was not difficult, and the disease might be cured in a comparatively short space of time. As to the passing of a horse with curb for breeding purposes, he mentioned a case in which a horse shown at an agricultural show in Shropshire was refused the prize for the best stock-getter because he had been fired, and the official veterinary surgeon very properly refused to pass him, although the owner said the injury had been due to an accident. The result proved that the veterinary surgeon was right, for afterwards twenty colts by the horse might have been found all with curby hocks. In conclusion, he drew their attention to a number of interesting specimens of diseased hocks met with in the course of his practice, and on resuming his seat he was warmly applauded.

*Prof. Pritchard* said he had listened with a great deal of plea-

sure to the lecture, and he might say he agreed with the bulk of what Prof. Walley had said, although he was disposed to criticise his theory as to the causes of bone spavin, as he considered that Nature would not have made a hock which would of itself predispose to disease. The knee had to bear far more weight than the hock, and if Prof. Walley's theory were right, they would more often have spavin upon the knee than the hock. He thought the explanation of the fact that they found spavin more often upon the inner side of the hock than the outer might possibly be that the inner side was more under the centre of gravity. He admitted all that had been said in reference to the manner in which spavin commenced, and considered that it frequently had its origin in the small ligaments which held together the small cuneiform bones. He also agreed that firing was the best of all remedies, and the one most to be relied upon. At the same time he had very little doubt that plenty of horses had been fired for bone spavin which had never had the disease at all. He also expressed concurrence in Prof. Walley's remarks as to the pathology of curb, which, he said, agreed with what he had advanced some time ago in a lecture delivered either in Manchester or Liverpool.

The discussion was continued by Messrs. Blakeway, Attwood, Stanley, Wragg, Smith, H. Stanley, and R. C. Trigger, and on the motion of *Mr. L. C. Tipper*, seconded by *Prof. Pritchard*, a hearty vote of thanks was accorded to Prof. Walley.

On the motion of *Mr. Olver*, seconded by *Mr. Blakeway*, a similar compliment was paid to the President for his inaugural address and conduct in the chair.

It was resolved that the next meeting of the Association should be held at Leamington, and the President announced that Mr. E. Stanley had consented to read a paper on "Professional Ethics."

LAWRENCE C. TIPPER, *Hon. Sec.*

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## NORTH OF ENGLAND VETERINARY MEDICAL ASSOCIATION.

THE annual meeting of this Association was held at the County Hotel, Newcastle-on-Tyne, on May 25th, 1883, the President, D. M'Gregor, Esq., Bedlington, in the chair.

There were present: Messrs. C. Hunting and C. S. Hunting, South Hetton; Grieve, Blaydon, Dudgeon and Stevenson, Sunderland; Awde, Stockton; Pringle, Gateshead; Mulvey, Bishop Auckland; Nisbet, Fence Houses; Farrow, junior, and Peele, Durham; Sheather, London; Elphick, Stephenson, Wilson, W. Hunter, and the Secretary, Newcastle-on-Tyne.

Letters and telegrams of apology for non-attendance were read from Professors Duguid and Walley, T. Greaves, Esq., Manchester, and several members of the Association.

Mr. Blanch, of Thornley, was unanimously elected a member of the Association.

The *President* then read his inaugural address as follows:

Gentlemen,—As you have been pleased to elect me as your President for the ensuing year, I beg to thank you for the honour you have conferred on me, and though I feel incompetent to fill the place of many able men who have been Presidents of this Society since its commencement some nineteen years ago, I have accepted the distinction, feeling assured that the members will be patient, and lenient towards my deficiencies in conducting these meetings.

In looking back to the first meeting of this Society in 1864, I am glad to see that there are still a number of the original members present. Some death has removed, others change of residence. Amongst the latter, Mr. Armitage, the founder of the Society. I understand he has left the profession, but I hope he is flourishing in his new sphere, and that some day we may have him in our midst again. At one time, through the lukewarmness of some of the members, this Society collapsed, and remained dormant for a time; but again it revived, and now I am pleased to see it flourishing, and hope it may long continue to bear good fruit.

I think, gentlemen, that there are none of us but can say they have reaped some benefit from our meetings. For myself, I must say I have derived great benefit, and so must all country practitioners. They have fewer opportunities of intercourse with their professional brethren than those in large towns, and are apt to get rusty, running in the same groove year after year. Even though they do read the veterinary journals it does not keep them up to the mark as do our friendly meetings, interchanging ideas, giving the history of peculiar cases, and eliciting different views of such cases, but all with the same object of elucidating truth. As the aim of all associations is the elevation of the profession, and the discussion of subjects important to veterinary science and the general public, these aims shall, I assure you, not be lost sight of during my term of office, and any feeble stimulus I can afford shall be heartily to promote the welfare of the profession.

I should have liked to have gone into the pupilage question in my paper, but that was so ably handled by Mr. Stephenson at our last meeting that there is little left to say. I think, however, that the majority of the members were against it, and I for one hope it will not become law, knowing well it will debar many good men from entering the profession. As Mr. Stephenson said, let the examinations be as strict as they can be made, both practical and theoretical, but do not put such an obstruction in the way of a poor man, who has a love for animals, and may have

an inherent aptitude for the practice of veterinary surgery, and who if the way to trying to pass was made easy "pecuniarily" would by his own perseverance and good common sense pull through creditably, where those having advantage far above him might fail. In the medical profession the old apprenticeship clause has been set aside for, I believe, the last sixty years; and if they saw the futility of such an act, I don't see why we should try to make it compulsory in our profession.

In reference to the change in the Examining Board, I regret, in one sense, that we should have to dispense with the services of members of the medical profession. So many eminent men have been connected with the Board since the Royal College was incorporated. Yea! some of the most eminent men the world has ever produced, such as Syme, &c. Although it cannot but be deeply deplored by all whose sympathies extend beyond the limits of our own profession that we should lose the co-operation of such eminent men. Still I think no valid objection can be urged against the new system, that the Examiners should all belong to the veterinary profession. At the same time were there a little more fraternising, both socially and professionally, between the two professions it would be better for both, as each can assist the other in many ways.

The subject I wish to bring before you in my inaugural address is one that has of late been above all others the most frequently before this and other societies, and also the general public; but I think it is not yet quite exhausted, I mean influenza fever, or "pink-eye," a name it has recently received, but how, or from what source, I have never learned, but I think it must be a "Yankee" term.

In commenting on this disease, which every now and then visits us in such a malignant form, I may point out that it is no new disease, but has been prevalent in this and other European countries for the last two hundred years; and had there been any writers on diseases of the lower animals before then I dare say we would have had statistics showing that the same disease had prevailed centuries before.

The oldest book on veterinary medicine to which I have had access is Mr. Boardman's 'Veterinary Dictionary,' published in 1805, and he describes the symptoms of influenza much the same as we find them now; and he quotes from an older writer (Mr. Gibson) as follows: "The jaundice with the staggers are sometimes epidemical; there have been many horses seized with this malady." It is described to have occurred more remarkably in some seasons than others, and generally about the end of spring or beginning of summer. It is no other than a bilious fever, and seems to be the same mentioned by "Soleysel" in his chapter on "Diseases of the head caused by choleric humors," which brought a great mortality among the horses in some parts of France and Germany in the years 1660 and 1661, and afterwards in 1669 and 1670.

This is seldom universal or of long continuance in Britain, but when it comes it proves fatal to a great number of horses, probably for want of knowing the true origin and source from whence arise those various symptoms, by which the head and the whole body also are so considerably affected.

Gangee in his "Domestic animals in health and disease" says, "We can trace back to 1819 distinct outbreaks of the same influenza that we witness occasionally at the present day."

In 1862, shortly after I came to the North of England, there was a pretty severe outbreak at some of the collieries, introduced then, as it invariably has been since by new animals from dealers, being put down the pits shortly after purchase, or during the incubative stage, and we lost several ponies, principally from congested lungs and liver.

Again, in 1886, it broke out in Backworth pit as what would now be termed "pink-eye." I recollect when I was sent for the horsekeeper telling me that a lot of the ponies were going blind, and when I first saw them I was inclined to believe we had "enzootic ophthalmia." Many of the ponies had their eyes so inflamed that the mucous membranes were protruding, a small stream of water running down the cheeks from each eye, loss of appetite, mouth hot, pulse ranging from 50 to 70. The thermometer was not in use then so I cannot give the temperature, but it must have been pretty high. I had never seen influenza in this form before, but after examining and watching the cases for a day I concluded it was this disease, and was corroborated in this by Mr. Hunting, who saw them a few days after. He told me that he had often seen the same symptoms shown. The disease had been introduced by a young pony put down the pit a week previous to the outbreak, but it showed no symptoms of the disease itself, having probably only recovered from it when we bought it. In this outbreak it was not nearly so contagious as it has been recently, as out of some seventy horses and ponies, in stables all connected with each other, only twenty-six were affected. There were no deaths, and the worst cases were better in six and eight days. Some were fit for work in three and four days.

I had no very serious outbreak again until July of 1881. On the 6th of that month eight ponies were bought by the Seaton Delaval Coal Company from a dealer in the County of Durham. One of them, a six year old pony, said to have come direct from hard work, was put down the pit immediately as we were in much need of him. This was against our rule, as for many years previous to this no horse or pony was allowed to be put into pit for at least a fortnight after purchase, but necessity has no law. This pony never showed any symptoms of disease itself, but ten days afterwards one pony fell dead at work from congested lungs, and several others were showing symptoms of influenza fever. It also made its appearance amongst the other new ponies which were in the field at bank.

I immediately took steps to prevent any animal being worked when under the fever by examining them minutely, daily, and having those affected removed to a stable by themselves, and used disinfectants freely through all the stables. The disease, however, spread rapidly until nearly the whole stud was affected.

By the end of September the disease died out, with loss of two ponies and two horses out of fifty-six cases. One pony and one horse died while at work by being put to work while under the influence of the disease. One pony died from a clot of fibrin forming in the heart; and one horse from irritative fever and laminitis of all four feet, the result of the disease. Several of these cases resulted in laminitis.

In a neighbouring pit belonging to the same owners one case of a very virulent type occurred (carried there by the head horse-keeper), but it was immediately removed to an old stable, and a temporary loose box prepared, and one man attended it and no others, which was the means of checking it here, as we had no others. This case recovered, but resulted in chronic laminitis.

As a sequel of the outbreak here I may mention that several of the worst cases amongst the heavy horses, after recovery, being too heavily worked became subject to disease of the bowels, and several died from ruptured bowels, showing that the muscular system was so weakened that from slight disorders the muscular coats of the intestines easily give way.

On February, 1882, "pink-eye" again made its appearance at Ashington Colliery, brought by some ponies from Newcastle. All the farm horses were first affected, then the coal-cart horses; sixteen in all were ill, but all recovered. To prevent the disease getting into the pits neither I nor the farm steward, who had the management of all the animals, ever went down the pits while the disease existed above ground, but on March the 4th two ponies fell dead at work in the pit, and on making a *post-mortem* examination on these I found that influenza fever was the cause of death, and told the owners so. How it got there I cannot tell, as every precaution had been used. It soon spread, as when I visited the pit for the first time I found six ponies affected. As trade was brisk at the time the owners expressed a wish that I should endeavour to keep the pit at work, and that they would purchase as many new animals as were necessary to do so. I told them the great danger was working the animals when affected, and that to introduce new animals was only to prolong the affection, and it would be better for them to introduce hand putting for a time. This was done, and by the beginning of April the pit was clear of disease, and on full work had not lost a day's work during the time, and they were not many scores per day short at any time while the disease prevailed. Out of fifty-nine cases two ponies and one horse died. The ponies dying before I saw them, the horse from congested lungs. Only three ponies and one horse escaped being affected out of a stud of sixty-three horses and ponies.

Now comes a peculiar incident in the spreading of this disease. About the middle of April the same year, a neighbouring farm to this colliery, the horses of which had been daily going and coming for coals, &c., had escaped so far. An entire horse belonging to Newcastle (Perfection by name). Said horse I learned afterwards had "pink-eye" in early part of year, and was attended by Mr. Elphick, served a mare there, and in about a week afterwards the mare had influenza fever, and a few days after every horse on the farm was affected. The next farm to this the horse served another mare with foal at foot, and some days after both mare and foal were very bad. The foal was perfectly blind for some days, and I was afraid would not recover. However, by careful nursing both mare and foal did recover. I traced the spreading of the disease by this horse to seven different farms in my own neighbourhood, always making its appearance in the mare served first. I also learned that this horse infected several mares in the county of Durham.

Now, this is a matter for investigation. Was the horse the medium of contagion, from the poison not being thoroughly eliminated from its system since its illness some months previous? Or had the mare at Ashington contracted the disease at the colliery, and been in the incubative stage when served? And if so would she have come in season, or remained in season so as to take the horse? I was inclined to the latter hypothesis until a day or two ago, when I went to the owner of the horse, and also the man who travelled him, when they confessed to me that the first mare the horse served last year had "pink-eye" seven or eight days afterwards, and he, the owner, had no doubt in his own mind that it was from the horse that all the mares were affected, and that he had to stop travelling him long before the end of the season.

I may mention that when the man was taxed for spreading the disease he carried a certificate of health from some veterinary surgeon, and showed it to all farmers, saying that he could not have been the means of carrying infection.

There is another peculiarity shown in this outbreak in the susceptibility of some animals to contract the disease, and the non-susceptibility of others. On one farm where two mares were served the same day, one had the disease and was barren; the other had not, and has this year a foal. I know also that the horse left several foals, so that all could not have been affected. This proves that though all had the germs of disease sown in them, each had not the requisite soil for its development.

All mares that were affected were barren.

In the month of March, 1882, this disease was also introduced to Bedlington Colliery, by a horse in which symptoms showed a few days after its arrival. Other seven horses were affected, but being immediately removed to a hospital was the means of checking its spread. None of these were very bad cases.

On the 19th of December it again made its appearance at Bedlington Colliery, and in the most virulent form that ever I have had to contend with. We had received two new horses on the 17th of November from Durham, where, I afterwards learned, the disease prevailed. One of these horses had been blistered on sides and throat. We kept them separate from all others for three weeks, and, seeming all right and working well, they were then placed alongside other horses in stable. On the 19th of December a horse standing next to one of these new ones was said by the horsekeeper to be foundered on all his feet. On visiting him I found the animal suffering from severe inflammation of lungs and high fever; pulse 70, and temperature 105°. Laminitis it undoubtedly had also, and in all four feet, so bad that I had great difficulty in getting the shoes removed.

Next morning the pulse was imperceptible, and temperature 108°, the highest I had ever recorded. Death took place that same day.

I found out afterwards that this horse had been dull and sluggish at work for a day or two previous to this, and had been partially off his food for several days; but as he was grossly fat no notice was taken of this.

*Post-mortem examination* showed the lungs in a frightful state; both, when cut into, were like great clots of coagulated blood; neither bronchia nor blood-vessels perceptible, and when pressed could be broken up like blood clot. The left ventricle of the heart contained a large clot of fibrine, and the right a quantity of black liquid blood. The liver was much enlarged and of a yellow colour.

On the 26th of December another horse was brought in from work suffering from inflammation of lungs so bad that I did not expect he would live many hours. Pulse was 80, and temperature 105½°; that peculiar expression of countenance expressive of congested lungs, protruding head, with fore legs set apart, &c. On applying hot-water cloths to the chest continuously for two hours, allowing plenty of fresh air, and cold water to drink, &c., the dangerous symptoms abated, breathing became less hurried, more cheerful countenance, and he began to pick a little food. On the 27th looked much improved, and I had hopes of recovery.

On the 28th, however, colicky pains came on, and from rolling about under the spasms aggravated the lung affection, and death took place the same night. *Post-mortem* appearances were much the same as last case.

On thinking over these two cases I concluded that they had been under the fever for some days before they were taken notice of, and knowing well what I had to contend with, I determined that no others should suffer under the same disadvantages. I commenced by carefully examining every animal in stable night and morning, and took the temperature of every one once a day.

Whenever I found the temperature above 101½°, had the animal removed to hospital. The stables were whitewashed with hot lime, the channels washed daily with Jeyes' disinfectant and plenty of water, and used other disinfectants freely; but all was of no avail in checking the spread of the disease; but I had the satisfaction of having no more deaths, though several were so bad that they were despaired of both by myself and others. Out of thirty valuable horses twenty-seven became affected; all were more or less affected in lungs, some of them very bad. One had suppuration and abscess of left lung, large quantities of pus being expectorated, and a very fœtid breath existed for a considerable time after recovery. Several of the worst cases have yet (four months after recovery), on a little extra exertion, a difficulty in breathing, and a weakness of the heart's action, no doubt from films of fibrine adhering to the valves of the heart. Many of these cases had diarrhœa about the fourth or fifth day after appearance of disease, and I found that in this, as in former outbreaks, those cases accompanied by diarrhœa got sooner well than those not so held, showing to my mind that the poison was more quickly eliminated from the system by watery evacuations.

Only three horses out of thirty escaped the disease. One was an old horse, one had the disease in March of 1882, and the other, the new horse, which I blamed for bringing the infection. I have found that animals that have had the disease once will not readily take it a second time, but would not like to say they will not.

On January 23rd we were clear of disease, and all were fit for light work, a little over one month from its outbreak.. Since then there has been no fresh outbreak in my own practice, and I believe the country is clear of it at the present time.

I have found from experience that where animals are worked, let it be ever so lightly, after fever has set in, the chances of recovery are small; therefore perfect rest is essential. As there is frequently a tendency to fever of the feet, I have all the shoes pulled off at the early stage; this not only relieves the hoofs, but also allows the animal more freedom to move when there is great debility. Fresh air in abundance is of the utmost importance, with cold water to drink. This, with good nursing, grooming, &c., I have mainly depended on for pulling through even the worst of cases. Get men that can be depended on to attend your patients night and day, have the legs hand-rubbed three or four times a day, and warm flannel bandages applied loosely from hoof to above knees and hocks; the bandages while off to be hanging beside a fire, or, what is better, placed in an oven, and always put on warm and perfectly dry, the whole body frequently groomed, and then sheeted. Let them be enticed twenty times a day if necessary to eat little bits of anything they will take from the hand; bread I have found good when all else was refused. The same way with fluids;

hay-tea, linseed tea, oatmeal gruel, &c. I have over and over again seen when an animal was unable to move from the corner of his box, when attended to in this way, would take a little nourishment now and again from the hand; and it is wonderful to note the changes in animals that are well nursed and cared for. Giving drenches I have discarded, and what medicine I give is always in bolus. An expert can even give quantities of stimulants in form of ball without the least disturbance to the patient, whereas the very lifting of the head to administer a drench, when there is great debility, is sufficient to cause death; and I have no hesitation in saying that many animals are killed by pouring medicines in form of drench. When there is congestion of lungs, I think there is benefit derived from hot-water cloths, and even mustard applied sparingly; but I think severe blistering very objectionable, as it only irritates the animal and increases the weakness, a thing you should of all others avoid. Nursing and plenty of pure air are, I maintain, everything in the treatment of this disease.

That influenza fever is highly contagious, I think no one who has seen much of it will dispute, and that like all infectious and contagious diseases it is a specific, and has a specific poison germ of its own, the same as scarlet fever and smallpox in the human subject.

That it is readily transmissible from one animal to another, from the incubative stage up to some weeks after recovery, and in some instances is communicable even to the human subject, as testified by myself in several instances when I have seen the attendant laid up for a time by the same fever; and a doctor of this city told me that while the disease was so virulent amongst the horses last winter it also was epidemical in the human species. That when once introduced into this country, it is kept up and propagated principally by unscrupulous horse dealers, who not only conceal the existence of disease, but deny they have it, sending out animals to all parts of the country when in the incubative stage. That it is also propagated by foul and unhealthy stables and bad management there is no doubt, and by public water-troughs, or even ponds by the road side, which are open to all comers, &c.

I believe the mortality in towns is much greater that in the country, mainly owing to having purer air and less crowding in the country.

That the disease should come under the "Contagious Diseases (Animals) Act" in a modified form I think is necessary, and I think that some day it will do so. The loss sustained by the country of late years will be the means of inducing Parliament to pass some Act to put a stop to unscrupulous dealers and others who knowingly send out animals to all parts from infected stables.

Gentlemen, the important question for us to consider is, what is the cause of these periodical outbreaks, assuming such a

malignant type at one period, and so much less at another? Is it that a specially poisonous germ is developed at one particular time more than another? or is it owing to the peculiar condition of the animals at times, so that the effect of the "germ" is twofold more serious than at others? Or is it owing to the condition of the atmosphere causing the same disease to become so malignant at one time and to assume so mild a form at others? These are questions that have often passed through my mind, and I doubt not through yours also. I put this before you now, in the hope that the old proverb may be fulfilled to-night—"In a multitude of councillors there is wisdom."

On the motion of *Mr. Stephenson*, who observed that there was much matter for thought and discussion in the President's address, its further consideration was adjourned to the next quarterly meeting of the Association.

The discussion on the paper read at the last meeting (subject "Pleuro-pneumonia contagiosa") was then resumed, Mr. Stephenson exhibited a most interesting specimen of portions of lungs from a cow slaughtered while suffering from pleuro-pneumonia contagiosa, showing that a portion of the lung which had been at some former time attacked with the disease was encysted and partially detached; and in other portions of the lungs patches of tissue more recently invaded by the disease. This animal had been on the farm for some months, and was apparently healthy until a few days before slaughter, but the *post-mortem* examination proved that for a long time past she had been capable of transmitting the disease. A lively discussion ensued, in which all present joined.

Votes of thanks to the President for his valuable address, and to Mr. Stephenson for his interesting specimens, brought the meeting to a close.

The annual dinner of the association was afterwards held in the dining-room of the hotel, and was well attended by the members and their friends. The cloth having been removed, and the usual loyal and patriotic toasts duly honoured, a number of prominent veterinary topics were discussed, and a most enjoyable evening spent.

WILLIAM W. SMART,
*Hon. Secretary.*

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## SCOTTISH METROPOLITAN VETERINARY MEDICAL ASSOCIATION.

A QUARTERLY Meeting of the above Association was held in the London Hotel, Edinburgh, on Wednesday, May 16th, the President, C. Philips, Esq., A.V.D., in the chair.

*Present*:—Professors Walley, Lewis; Mr. Fadyean; Messrs. Baird Fairbairn; Fingzies, Storrie, Grey, Connachie of Ayton;

Connachie, jun., Selkirk; Cunningham, Young, W. O. Williams, and the Secretary.

The minutes of last meeting having been read and confirmed, the *Secretary* proposed that the following gentlemen be elected members of the Association: C. Phillips, Esq., V.S., 3rd Dragoon Guards, and Mr. Clark, V.S., Cupar Angus. This was seconded by *Mr. Storrie*, and both gentlemen were unanimously elected.

*Mr. W. O. Williams* recommended for membership Mr. Stewart, M.R.C.V.S., of Stirling.

Following upon some consideration of the Society's rules which are under revision, discussion of Mr. M'Gillivray's paper on "Tubercular Stomatitis" was resumed by *Prof. Walley*, who repeated an opinion he had already expressed, that the disease in question was not tubercular in its nature, and that it was the disease long ago described by Simonds under the designation of malignant aphthæ.

The history of a case of twist of the bowel was brought before the meeting by the Secretary, in the absence of Mr. H. Thompson, of Aspatria, in whose practice the case occurred.

Drawings of two monstrosities were exhibited by Prof. Walley.

Mr. W. O. Williams promised to read a paper at next meeting on "Obstruction of the Bowels."

Votes of thanks were awarded Prof. Walley and Mr. Thompson for their communications, and to the President.

R. Rutterford, *Secretary*.

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## FELLOWSHIP DEGREE.

On the 8th of June an Examination was held at the Royal College of Veterinary Surgeons of candidates for the degree of Fellow. Professor Duguid, a Member of the College of Preceptors, and Messrs. Collins and Fleming being the Examiners.

The following gentlemen successfully underwent the Examination and became Fellows:—Messrs. W. B. Walkers, E. T. Cheeseman, Army Veterinary Department, and Mr. C. Sheather, of London.

The questions in the written portion of the Examination were as follows:

### Surgery.

1. Describe the process of Ulceration in (*a*) long and (*b*) flat bones.

2. Give an account of the modern surgical means and appliances in the treatment of Wounds.

### Dietetics.

1. Describe the various Natural Waters, with their physical and chemical differences, and place in order of merit their suitability for horses and cattle.

2. Give a short account of the common poisonous Grasses (English), with their mode of action.

### Sanitary Science.

1. Give the composition of Sewer Gas and its action on domesticated animals.

2. What artificial means can be suggested for the better Ventilation of Cattle Ships?

### Pathology.

1. Describe the different forms of Pneumonia and the symptoms which characterise them.

2. Mention the characters which distinguish Sarcomatous, Carcinomatous, and Fibromatous Tumours, and describe their development.

### Epizoötiology.

1. Mention the causes which influence the extension of Glanders.

2. Under what conditions may an Enzoötic malady become Epizoötic?

3. What are the modern views as to the nature of Contagia?

What are the distinguishing characters of the Solidungula, Ruminantia, and Carnivora?

Describe the action and sounds of the Heart. Mention the state of the auriculo-ventricular and semilunar valves at the time these sounds are produced.

Describe the structure of an Artery, and state how the pulse-wave within it is produced.

What are the functions of the Liver? Describe the arrangement of a single lobule of this gland.

Describe the physiological actions of Hyoscyamus, Belladonna, and Digitalis, and state under what conditions they may be used therapeutically.

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## Veterinary Jurisprudence.

### ALLEGED CRUELTY BY VETERINARY SURGEONS.

#### Singular Prosecution at Cheadle.

At the Cheadle Police Court, June 22nd, before Messrs. Charles Bill and Hyde Smith, William Walters, veterinary surgeon, of Checkley, was summoned by Inspector Leonard, of the Royal Society for the Prevention of Cruelty to Animals, for cruelty to a horse on May 17th, by taking off or "drawing" the sole of its hoof.

Mr. Richardson supported the summons, and Mr. T. S. Wilkins defended.

*Mr. Richardson*, in opening the case, said that the defendant was a veterinary surgeon of considerable standing, so far as length of time was concerned, and that the question in the case would be whether or not the operation was an act of wanton cruelty or the result of gross ignorance, or whether it was the result of

wilful desire to benefit himself pecuniarly without the possibility of doing any good whatever to the animal. He took it that as the law provided that a doctor who treated his patient so unskilfully and contrary to the rules of the profession as to cause that patient's death was guilty of manslaughter, so by parity of reasoning, if he could prove by professional evidence that the treatment of the horse in question was provocative of the greatest pain and torture to the animal, and could not by any process of reasoning be proved to be of possible benefit to the animal, or, indeed, affect it either *pro* or *con.*, then, though defendant might plead that he was acting in a perfectly *bonâ fide* manner, he should, he thought, be entitled to a conviction.

On May 17th a horse belonging to a man named Perry was sent by defendant to a blacksmith, and according to instructions received from defendant the blacksmith pared the inside wall hoof of the fore foot of the animal as thin as he possibly could. Shortly afterwards the defendant himself came to the shop, and with his assistance the horse was fired, and then round that part of the foot, presumably where the firing had taken place, a rope was tied to prevent excessive bleeding, and the horse was thrown down. An instrument was placed underneath the sole, and the sole was prised up bit by bit, and after a time the blacksmith, by order of the defendant, took a pair of pincers, and by muscular force the sole was torn away from the soft portion of the hoof underneath. The pain must have been most exquisite—almost past all power of imagination. The horse was suffering from ringbone or sidebone. Defendant told Perry that the horse was suffering from this complaint, and mentioned no others. He should satisfy their worships that the horse was suffering from no disease that would require such an operation. Had the horse been suffering from canker such an operation might have been of benefit. It might be asked what motive could Mr. Walters have had in wilfully committing such an act of cruelty. He could only put it in this way, that the operation would necessitate a very long rest for the horse, and also constant professional attention, for which, of course, the defendant would be entitled to a fee.

*George Perry*, publican, of the Draycott Arms, was the first witness, and deposed that he was the owner of the horse in question, and was present during the operation. Defendant afterwards remarked that the horse had a good nerve. Witness was summoned for working the horse previous to the operation, and the magistrates fined him 20s. and costs.—Cross examined by Mr. Wilkins: It was in consequence of the lameness of the horse that defendant was consulted. Witness had blistered the horse previous to that time, and put him on a bar shoe. Before this operation defendant had examined the horse twice, perhaps more. Defendant told witness some time in April that it would be necessary to draw the sole, and that the horse should have a month's rest. During the operation defendant told witness the

binding of the rope would numb the pain and stop the flow of the blood. The horse did not sweat nor groan, but grunted a little. As soon as the operation was over the horse got up and began to graze as if it did not suffer pain. It put the injured foot to the ground. The foot grew gradually better, and was now sound, though the horse had not yet been worked. The horse did not, in his opinion, suffer so greatly as in the operation of castration. At the time of the summons against him for working the horse it would not have sold for £1 ; now he would not sell it for £40.

*Charles Perry*, nephew of the last witness, and *William Fenton*, blacksmith, of Draycott, who were present during the operation, deposed that the firing took about ten minutes. The latter witness had seen a similar operation performed several times before by Mr. Walters. After the operation some tow was put into the hoof, and a leather cover was fixed on.—Cross-examined : Defendant had drawn the sole of a horse belonging to Dr. Dawes, and the horse went well afterwards.

*Francis Leonard*, inspector of the Society for the Prevention of Cruelty to Animals, deposed that he found the horse on the day after the operation, and noticed that it was standing on three legs ; the other leg it was constantly moving about as if in tremendous pain. He had been seven years with the society, and for nine years previously in the army with a troop of engineers, and he had never known this operation performed for ringbone or sidebone. He had known a horse "drawn" for canker, and the horse died as the result.

*R. C. Trigger*, M.R.C.V.S., who had been in practice in Newcastle for thirteen years, deposed that he had inspected the horse. It had a sidebone. Presuming the horse to have been suffering from ringbone, sidebone, or disease of the back tendons, the taking off the sole from the hoof could not have benefited it. Drawing the sole would not affect these complaints in any way. This operation was not recognised in the profession, though it was in practice on the Continent for cases of canker. He never saw it performed, and never knew an intelligent man perform it as a remedy for ringbone or sidebone. He doubted its use in the case of canker. He had just examined the horse, and found a small sidebone on the outside of the off fore foot. The horse was lame in the back tendons. The rest of six weeks would relieve the horse and enable it to walk. He doubted if the horse would ever be able to walk upon a road. The drawing of the sole would inflict horrible pain, not only during the operation, but for days afterwards.

*Alfred Hodgkins*, veterinary surgeon, having practised for seventeen years in Hanley, agreed with the last witness's evidence.

*Dr. Fleming*, President of the Royal College of Veterinary Surgeons, and author of some of the standard works of the profession, deposed that the operation of drawing the sole of a horse was not one that was recognised by the profession, and

could effect no benefit in the cases of ringbone, sidebone, or disease of the back tendons. He had examined the horse in question, and found that it had contracted tendons, but could find no trace of ringbone, though there was sidebone. The drawing of the sole was an act of cruelty, because it was unnecessary.

*Cross-examined.*—He never saw a healthier horn moved from a healthy foot. He had seen it in canker. He thought pincers were a barbarous instrument in this case. The operation was in use on the Continent, but not in such complaints as this horse was suffering from.

*Mr. Wilkins* then addressed the Court for the defence, and said that, before convicting the defendant, their worships must be satisfied that the operation was one that could not benefit the horse under any possible circumstances, and that defendant did it for the sake of a few paltry shillings.

On the suggestion of the Clerk, their *Worships*, interposing, said they were agreed that there was no pecuniary motive on the part of the defendant.

*Mr. Wilkins*, continuing, said his client believed that the operation would result in the relief of the horse, and he should show that this result had been obtained. As to the pain that the operation caused, he should show that it was momentary, and nothing so intense as in the other necessary operations of firing and castration. They must, he contended, before convicting, be satisfied that the cruelty had been of no avail whatever.

*Thomas Greaves*, M.R.C.V S., practising at Manchester, deposed that he was President of the Royal College in 1869 and 1870. He was now acting as veterinary surgeon to a local Society for the Prevention of Cruelty to Animals, and was attached twenty years ago to the Royal Society. He had seen the operation of drawing or "stripping" the sole, and had himself performed it forty or fifty times during the last twenty years in cases of canker and contracted feet. The Society had not summoned him, but the officers of the Society had stood by during the operation. He had never operated in the way described in the case of sidebone, but after seeing the beneficial results of defendant's operation he should certainly recommend his employers to adopt it. The usual treatment in such cases was firing and blistering, causing great and prolonged pain. He did not think that the "drawing" of the sole of a horse would cause one quarter of the pain of firing. He was under the impression that none of the horses he had operated upon had died soon after. The horse in question was not suffering from contracted tendons, but had a sidebone.

*Charles Brown*, farmer, of Park Hall, had had a horse drawn by defendant, and the result was that it came back sound, and whereas he bought it for £8, he sold it again for £26.

*Edward Freeman*, bailiff to Mr. Mountford, of Blurton, near Uttoxeter; John Beardmore, innkeeper, of Tean; and Thomas

Green, farmer and horsedealer, of Cheadle, had also had operations performed upon their horses by defendant with beneficial results. The last witness bought a horse from the previous witness, after it had been operated upon, for £45 10s., and sold it for £48. He bought it again twelve months afterwards for £58, and had sold it again since for £61.

The *Chairman*, in giving the decision of the Bench, said the case was one of extreme difficulty. They could not decide upon the different methods of treatment, for even veterinary surgeons disagreed among themselves on the point. If defendant had had a certain measure of success in his previous treatment in the way described, and had performed this operation in the hope of possible success, they thought they would not be justified in convicting him. At the same time he might say that they thought an operation causing such intense pain should only be used as a last resort, and it was his impression that if ether spray, or some such deadening influence were used the pain would be very much minimised. For these reasons they could not convict in this case. They should not make any order for costs, as they thought it was quite necessary that the case should have been investigated.

The case was watched by a large audience, whose frequent exclamations throughout showed their inclination to the defendant's case. The decision was received with cheers, which were at once suppressed.—*Staffordshire Sentinel.*

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## Parliamentary Intelligence.

### METROPOLITAN CATTLE MARKET.

HOUSE OF COMMONS, *May 28th.*

MR. DODSON, in reply to SIR SYDNEY WATERLOW as to the desirability of placing the Metropolitan Cattle Market upon the same footing as the other large cattle markets in Liverpool, Manchester, Wakefield, &c., was sorry to say that in the present unfortunate prevalence of foot-and-mouth disease in the country the Privy Council did not think it expedient to remove restriction on the removal of cattle in and out of the metropolis. It so happened that when restrictions had been modified and animals removed, though only for the purpose of slaughter and during the night, the disease had been spread.

### CATTLE DISEASE.

In answer to questions of Mr. Heneage, Mr. J. Howard, and Mr. Chaplin,

MR. DODSON said that the Privy Council certainly had power to prevent the landing of animals from any suspected foreign country whatever. An opinion on that question was given by the Lord Chancellor; indeed the existence of power prohibiting

the importation of animals from any country where any contagious disease existed had never been doubted. That power was exercised at the present moment against France, and also against the importation of cattle from Germany, and Her Majesty's Government were at present in communication with the German Government as to the importation of sheep from that country. The Privy Council had not power to lay down one general rule prohibiting or regulating the importation of animals from all countries in which contagious disease prevails, but they might from time to time exercise that power against any particular country. The Privy Council were more than ever alive to the necessity of proceeding with vigilance and determination. (Hear, hear.)

## IMPORTATION OF CATTLE FROM FRANCE.

*June 14th.*

Mr. Dodson, in reply to Viscount Newport, said that the Order prohibiting the importation of animals from France would be in force until the 6th of July, and it was too early to decide whether it should be renewed for a further limited period. The French Government were taking very energetic measures to prevent the exportation of diseased animals.

## LETTER FROM MR. A. BROAD.—Assistance for Mrs. Hall and Children.

Dear Sirs,—The letter from Mr. Barker which appears in the *Veterinarian* for this month, was brought forward at a meeting of the Central Veterinary Medical Society on the 7th inst, and it was resolved that if any subscriptions were started for the assistance of Mrs. Hall or her children, a donation should be made from the funds of the Society.

Yours faithfully,

*To the Editor of the 'Veterinarian.'* Alfred Broad.

## SUBSCRIPTIONS RECEIVED BY PROF. WALLEY IN AID OF MRS. HALL AND HER FAMILY.

| | £ | *s.* | *d.* | | £ | *s.* | *d.* |
|---|---|---|---|---|---|---|---|
| R. Jerwood . . . | 3 | 3 | 0 | F. G. Chesterman . . | 1 | 1 | 0 |
| T. Barker . . . | 1 | 1 | 0 | T. Horsman . . . | 0 | 10 | 0 |
| Edward Nuttall . . | 1 | 1 | 0 | P. B. . . . . | 0 | 5 | 0 |
| Thos. Greaves . . | 5 | 5 | 0 | J. Bell Clonmel . . | 1 | 1 | 0 |
| C. Sheather . . . | 2 | 2 | 0 | G. Fleming . . . | 1 | 1 | 0 |

## ADDITIONAL SUBSCRIPTIONS FOR MRS. BROSNAN AND HER FAMILY.

| | £ | *s.* | *d.* | | £ | *s.* | *d.* |
|---|---|---|---|---|---|---|---|
| Aitken Loughborough . | 0 | 10 | 0 | G. Fleming . . . | 1 | 1 | 0 |

## LETTER FROM MR. RUTHERFORD.—Correction.

Royal College of Veterinary Surgeons
(Scottish Section),
Edinburgh; *June 8th*, 1883.

Dear Sirs,—Will you kindly in your next issue correct the following mistakes which occur in the list of gentlemen who passed the various examinations held here in April:

Edinburgh New College.

A *or First Examination.*—Mr. A. Chamberlain is entered as having passed, *whereas he was rejected.*

Edinburgh New College.

B *or Second Examination.*—Mr. A. E. Haslam should be Mr. A. J. Haslam, with *Very Great Credit*,

And oblige, sirs, yours obediently,

R. Rutherford, *Secretary.*

*To the Editors of the 'Veterinarian.'*

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## OBITUARY.

### Mr. James Kerr.

We regret to have to record the death of an aged and highly respected member of the profession—Mr. James Kerr, of London. Mr. Kerr passed his examination as far back as 1825, his diploma bearing date April 29th of that year. His early professional life was spent in India, and on returning home he became associated with the late Mr. Mavor, the father of the present Messrs. Mavor, in the conduct of his very large and lucrative practice. Subsequently he practised as a consulting veterinary surgeon, chiefly in the purchase of horses, and as such was a frequent visitor to "Tattersall's." He took little interest in veterinary politics, but was nevertheless elected a Vice-President of the Royal College of Veterinary Surgeons in 1861. Advancing age led to his retirement from all active duties, and for some years he enjoyed the fruit of his well-spent life in his comfortable home at Bayswater.

### Mr. Alfred Rushall.

We have likewise to record the death of Mr. Alfred Rushall, M.R.C.V.S., Bishop's Stortford, in the fifty-eighth year of his age. He was well known and highly respected, not only in his immediate neighbourhood, but in the counties of Herts and Essex; holding office as veterinary surgeon to the 1st Herts Light Horse Volunteers. His diploma bears date April 8th, 1846.

THE

# VETERINARIAN.

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## Communications and Cases.

### FACTS AND OBSERVATIONS TENDING TO ELUCIDATE THE ETIOLOGY AND PATHOLOGY OF CEREBRO-SPINAL MENINGITIS.

By J. Wortley Axe, Professor of Pathology, &c., at the Royal Veterinary College.

At the present time and in the immediate past the genesis of epidemic and epizootic diseases has received an incalculable amount of painstaking attention from all the scientific resources of medicine. Biologists, chemists, epidemiologists, and physicists, have alike shared in the endeavour to unravel the mysterious relations of life forms and disease. During the past decade human pathologists have been actuated by a spirit of original research never so determined and far-reaching at any former period in the history of medicine. Doctrines to which comparatively modern men gave their ready and unqualified assent, examined by the light of present knowledge, have, in numerous instances, melted away, while more rational and better understood pathological formulæ have been adopted in their stead.

If we seek for an explanation of the vast strides which are being made by our sister profession, and the great achievements she has accomplished, it will, I venture to think, be found not in any inherent transmutation of the processes of disease, or more simple and definite manifestations, but in the more truly

scientific spirit which now actuates the votaries of medicine, and the consequent greater desire for and higher appreciation of facts and phenomena, and a more matured and highly cultivated faculty of analysis, comparison, and interpretation. To this more essentially self-reliance of the age and the energy begotten of disappointment and incertitude in fostering and upholding the doctrines of tradition may, I think, be attributed the present advanced condition of pathological science. To emulate the good example of those who, by patient industry in collecting and systematising facts and events, have so successfully overhauled the errors of a long-abiding empiricism must be the desire of all who seek to advance the cause of comparative pathology. A matter, Dr. Simon has somewhere said, admits of philosophical definition only when its investigation has been completed, and not, as some imagine at the commencement and on the threshold of inquiry. It is to be feared that this wholesome truth is far too little appreciated by our profession, and that the advantages of thoroughness and sustained research in the elucidation of pathological questions are forfeited to the more easily acquired though less enduring doctrines of tradition. It is the object of this paper to place on record such facts as appear likely to aid in the elucidation of what is at present, a most obscure malady, and I shall be glad if members of our profession will direct attention to cases which in the future may come under their notice.

There is sufficient reason for the statement that this disorder in an epizootic form is but little known in Great Britain. In recent years it has prevailed in America to a large extent and destroyed large numbers of horses, besides causing serious losses by permanently disabling some, and temporarily incapacitating others.

My first experience of the affection was obtained in the month of February, 1881, when I was called upon to inquire into the circumstances of an outbreak of a fatal disorder in a stud of cart-horses belonging to a gentleman in Essex.

At the time the disease appeared there were in all ten horses on the farm. Eight of them were occupied in ordinary agricultural work, which, at the time, consisted chiefly in the sowing of spring corn.

The other two were colts, each three years old. Among the former were both mares and geldings, whose ages ranged between four and fourteen years.

### *Location and Management.*

The farmstead was situated in a valley a short distance from the high road, protected on every side by gently sloping hills

and beyond its isolated condition presented no feature of topographical importance.

At night and during the day, when unemployed on the farm, the eight horses in question were folded in a yard sheltered by buildings on three sides, on one of which a shed existed for their accommodation and protection during the night.

The two colts shared an adjoining pasture with a number of beasts during the day, and in the evening they were folded in a yard abutting upon but separate from that of the eight cart-horses.

The yard occupied by the latter opened out into the pasture referred to, and when vacated by them in the morning the colts were allowed access to it, and were permitted to eat such food as might remain from the last meal of which the cart-horses had partaken. I mention this in order to show, what might not otherwise appear, viz. that as a matter of fact the circumstances in regard to diet were in some respects identical in the two cases.

### *Circumstances of Food Supply.*

In considering the circumstances of food supply, I was informed that at the time of the outbreak the working horses were receiving clover hay, oats, barley-chaff, and a small daily allowance of Swedish turnips. Such of these several articles of diet as were accessible I was careful to examine, and also to obtain such facts concerning them as might prove interesting to the inquiry.

The clover hay was grown on the farm. It was badly harvested, and, besides being of a bad colour, it was largely contaminated with cryptogamic vegetation, and emitted a disagreeable odour.

Its general condition as to quality, indeed, was so inferior as almost to unfit it altogether for dietetic purposes. The stack from which it was being obtained was first commenced in the early part of November, and from that time to the day of the outbreak of the disorder no other hay was used. In estimating the possible implication of this fodder in the causation of the malady, it will require to be borne in mind that although charged with foreign matter of a deleterious character its general condition was not by any means exceptional, but that it was fairly representative of the state in which a large quantity of hay existed in various parts of the country where this disorder was unknown.

In order, therefore, to identify the hay in question with the causation of the disease, it will require to be shown that it was allowed to the horses in excessive proportions, or that it con-

tained some principle of a special and pernicious character which had no existence in other fodder similarly deteriorated.

In reference to the first point, the fact may be repeated that it formed a large proportion of the daily ration; as to the second, I have no positive evidence to offer. The absence of disease during the first three months of its use cannot be overlooked in considering its possible concern in the etiology of the disorder. It might be urged with much plausibility, that the last-mentioned fact is insufficient to acquit the hay of all noxious influence, or of having played a part in the *rôle* of causation, having regard to the cumulative action or crisis so forcibly illustrated in the employment of certain medicinal agents.

As bearing on this particular part of the inquiry, it may be mentioned that the first portion of the stack consumed is said to have been less damaged by weather than that more recently employed. Whether the latter had acquired special deleterious properties which the former did not possess, or whether the common degraded condition reached in it a specially injurious degree, it is impossible to state.

Of the turnips it can be stated that the bulk of them were in a sound wholesome condition, but that among them were numerous roots in a state of putrefaction and utterly unfitted for dietetic purposes. Only the former were selected for the animals in question, as well as for a number of oxen, whose staple food they had formed since the early part of November.

Seeing that this portion of the dietary was largely used as food for cattle without occasioning any ill effects in them, and considering also the very small amount of roots consumed by the horses in whom the disease appeared, there would not seem to be any sufficient reason for suspecting the swedes of possessing any hurtful property.

The remainder of the food supply, consisting of oats and barley-chaff, was to all appearances sound and sweet, and so far as ordinary methods of examination would admit of an opinion being formed of their quality, they presented all the properties of a wholesome diet. When the several articles of food referred to were discontinued the disorder showed no signs of abatement, neither in its spread nor in the severity of its attack; nor did the animals previously stricken and then suffering show any signs of relief or tendency to recover.

### *Water Supply.*

The water supply was derived from a pond fed by an open spring about fifty or sixty yards distant from it. From the pond the surplus water was constantly passing away by an overflow into an adjoining open drain, and by this channel it was

conducted through neighbouring meadows, and furnished a supply to large numbers of horses and oxen in its course. It will be seen from this that the pond from which the water was derived is, practically speaking, part of a running stream; and situated as it is at the head of the watercourse, any deleterious properties its contents possessed would certainly have been felt by animals lower down the stream, and thus the area of the outbreak would as a consequence have been enlarged; in other words, assuming a faulty condition of the water supply at its source of the nature here contemplated, the disorder should have followed its lines of distribution. That the water did not play any part in the etiology of the disorder is clearly shown by the absence of disease at all points in the course of the stream.

*Stables and Stable Management.*

With reference to the stables and stable management, there did not appear to be any condition of the one, or practice in the other, calculated to excite disease, nor can it be said that the particular nature of the work in which the horses were engaged was specially calculated to disturb the cerebro-spinal centres. It may, however, be worth considering that the farm was somewhat undulating, or even in parts hilly, but I was assured by the owner that it was not under-horsed, and that no unusual pressure had been put upon the horses in carrying out their daily work so as to inflict inordinate strain upon the spine or the muscles in connection with it.

*Meteorological Conditions.*

Without reference to the meteorological conditions prevailing at the time of the outbreak, and during the course of the disorder, this investigation of a very obscure malady would be manifestly imperfect, and especially so having regard to the indications afforded by the records of cases of a similar character presently to be referred to.

During the three months while the disorder prevailed the weather was marked by considerable extremes of temperature.

February was extremely wet, rough, and changeable. South-westerly and southerly winds alternated with cold strong breezes from north and east, the former bringing sun, the latter sleet and snow. During the early part of March we had in an aggravated form the same characteristics which had marked the weather of February. Large quantities of snow and rain fell, and fierce southerly and south-easterly gales swept over the country, followed by cold piercing easterly winds, which at times reached the force of a gale. April was ushered in with strong biting easterly winds, and a fair amount of sunshine. This was

followed by frequent showers of sleet, hail, and rain, and searching north-easterly currents alternating with mild south-westerly breezes and showers.

*Outbreak in the North-West District of London.*

While I was engaged in an inquiry as to the nature and origin of this malady as it appeared in Essex, I was consulted by Mr. Daniels, of London, respecting a similar affection then prevailing in a large stud of horses under his care, belonging to the London Street Tramways Company, a report of which appeared in the *Veterinarian* for May and June, 1881. At the request of Mr Daniels I visited the stables of the company, and made a careful inquiry into all the circumstances of the outbreak. It soon became manifest that the malady with which we had to deal was identical in every essential feature with that then prevailing in Essex, and at the same time in the practice of the President of this Association.

In the Tramways Company's horses the disease first appeared on the 24th of February, two days prior to the outbreak in Essex, and in both instances it continued to prevail until the following May. Whatever may be the logical interpretation of this fact, I am constrained to regard it as one of the first order and of the highest importance to the inquiry. The simultaneous outbreak of cerebro-spinal meningitis in Norfolk also adds considerably to its significance and value. In the history of the London outbreak the same obscurity in regard to causation exists as pertains to those of Essex and Norfolk, but the clinical and pathological phenomena leave no doubt on the mind as to the identical nature of the malady in the three centres. Animals of all ages and of both sexes were attacked with equal severity. But here, as in Essex, mares showed a much more pronounced susceptibility to the disorder than geldings. Case succeeded case at intervals varying from two days to a fortnight, and the outbreak continued from February 24th to the early part of May.

The accession of the malady was sometimes sudden and pronounced, sometimes gradual and obscure, and the duration of the disease varied from twenty-four hours to several weeks.

The sanitary condition of the stables, as well as their position and the general system of management in operation, were as efficient as the most fastidious hygienist could desire.

In this instance the food comprised maize, oats, beans, peas, with hay and straw chaff, all apparently in a sound condition, and the absence of any deleterious property in any one or all of them is proved by the fact that large numbers of horses belonging to the same company, and located in different parts of the metropolis, were receiving their daily rations from the bulk.

of these several articles, without being in any way affected by the disorder.

*Water Supply.*

The water supply is furnished by one of the metropolitan companies, whose service system extends over a large area, embracing considerable numbers of stables, in which are contained many thousands of horses of all ages and in every variety of condition. Under these circumstances the water furnished to this particular stud cannot be regarded as in any way concerned in the causation of the disease.

*Propagation of the Disorder.*

With reference to the propagation of the disorder, I have to record many interesting facts and observations from my own experience and the experience of others. Some of them appear to suggest the operation of a specific virus or contagium, and to stamp the malady with the impress of a transmissible or contagious disorder. In one instance, at least, there was some reason for attributing to this supposed virus a considerable range of action beyond the equine species, and, indeed, for viewing with no inconsiderable alarm the activity and malignancy it displayed. On the other hand, it may be stated that equally reliable data are forthcoming by which this view of the question is directly assailed and refuted.

The facts bearing on this part of the question are these. At the time when the disorder prevailed in the County of Essex, Mr. Ellis, veterinary surgeon of Maldon, resolved upon trying the efficacy of venesection. Several horses were consequently bled, and the blood removed from them was, contrary to instructions, thrown down in a yard adjoining the stables.

During the day large numbers of sparrows were observed to partake freely of the clot, and after a short period to become paralysed in their wings and unable to rise from the ground. On the following day a sow and a dog, who had also consumed some of the blood, were similarly affected, the latter so much so as to lead to his destruction. Several young pigs, offspring of the sow referred to, were at the same time seized with convulsive twitchings of the voluntary muscles, accompanied by a greater or less degree of paralysis. These latter animals, it should be mentioned, had not partaken of the blood of the horses, but were at that time subsisting exclusively on the milk of the dam. In reference to this point, Mr. Daniells, veterinary surgeon to the London Streets Tramways Company, states that the blood of horses having died from this disorder while under his care has in several instances been consumed by dogs without giving rise to any indications of sickness; the same

gentleman, however, has adduced some very interesting facts suggestive of the existence of a contagious principle, communicable from horse to horse, by which the disorder is propagated and kept alive. In referring to the outbreak already alluded to, Mr. Daniells says: "The first appearance of the disease occurred in Stable A, from which I removed four convalescent cases on the 18th of March to Stable B. Up to this time no appearance of the malady had been observed in the latter, but, five days afterwards, the disorder showed itself in Stable B, to which the disease has been chiefly confined.

Professor Large of the Veterinary College, who has no doubt considerable experience to guide him, is of opinion that this disease is neither contagious nor infectious. In support of this view he adduces an instance where an animal while suffering from the disorder was removed to a stable among a number of horses, and notwithstanding that the former continued and died in the presence of the latter no extension of the disease ensued. In an article contained in Williams' 'Practice of Medicine,' Mr. C. J. Lyman, veterinary surgeon of Boston, U.S.A., defines the disease as a *malignant, non*-contagious epizootic fever of the zymotic class, which he attributes to a specific poison contained in the atmosphere. The symptoms, he says, are more or less developed, depending upon the amount of poison absorbed into the system. Dr. Mone, of Albany, New York, considers it a malarial fever, associated with paralysis of various organs of the body as a consequence.

Before quitting that portion of the subject relating to the etiology and propagation of the affection, it is interesting to notice the facts and opinions recorded by English veterinarians concerning what has been termed "epizootic" and "enzootic paraplegia," some of which may assist in throwing light on the etiology of the disorder in question.

Percival, in his 'Hippopathology,' recognises an epidemic form of paralysis, and associates it with the peculiar circumstances of low, cold, marshy pastures, the prevalence of stagnant water, and of *currents of cold air,* particularly in the autumnal and spring seasons of the year. Although no such conditions as those first referred to pertain to the outbreaks in question, there is an obvious identity of character in the circumstances of season and atmospherical condition. As I have already pointed out, the malady came before us at a time when cold biting winds prevailed, and it continued until they subsided and the weather became more genial and temperate. In the *Veterinarian* for 1857 Mr. Small, veterinary surgeon of Dundalk and Newry, records an outbreak of spinal paralysis under the title of "a new epidemic among horses," and he there furnishes a brief report of

nine cases which came under his notice. He speaks of the "alarming frequency" of the disease in his practice, and announces its existence at that time in several different centres or farms in the district. In this instance the malady occurred in the month of August, and appears to have prevailed among animals of all ages and both sexes, whether out at pasture or in the stable. Of the particular kind of food received by the latter no account is unfortunately given, nor does Mr. Small enter into the etiological bearings of the question.

In response to Mr. Small's communication, Mr. Storrar, of Turriff, describes a similar disorder as also of very common occurrence in his district, and expresses the opinion that it has its origin in some "paralysis-producing principle" contained in the rye-grass when it is changing from a green to a dry state. This conclusion appears to rest on the fact that the disorder usually occurs in the months of June and July, when horses are receiving rye-grass whose seeds are in the process of ripening.

In this view of the origin of the disorder, Mr. Litt, veterinary surgeon of Shrewsbury, concurs, and adduces illustrative cases in the *Veterinarian*, for 1858.

Writing of this disease about the same time, my colleague Professor Robertson refers to paraplegia in the horse as an enzootic of yearly occurrence on the immediate banks of the Tweed. No particular breed or age, he says, is exempt from it, and in his experience it is as common in the stable as the pasture.

He marks the period of its prevalence between July and the early part of September, and it appears to him to bear some analogy to the disease known as "Kumree," an affection largely prevalent in certain provinces of India, and also to that affection commonly designated "Louping Ill," which prevails in the sheep flocks of certain districts of Scotland. Professor Robertson, however, shares the opinion expressed by Mr. Litt, but at the same time enlarges the range of the causative influence. In his experience it is equally prevalent among horses whose diet is chiefly composed of ripe vetches, rank meadow grass, and on any kind of ripe green food where the woody fibre has a considerable preponderance over the more easily digestible and succulent materials. Professor Robertson considers the paraplegic condition to be secondary on the derangement of the digestive function, and there would seem to be a consensus of opinion among the gentlemen named in favour of this conclusion.

In further pursuance of the history of epizootic paralysis in the horse, it is both interesting and instructive to notice certain facts relating to the disorder "Kumree," which seem to assi-

milate that disease in some measure at least with the one under consideration. In the *Veterinary Journal* for 1878 Mr. W. Sartin records many important observations bearing on the question. Of the prevalence of kumree in British Burmah, he states large numbers of horses annually become incapacitated through paralysis of the hind quarters. The disease, he remarks, appears more or less in every month of the year, but from the beginning of August to the end of December it prevails to a serious extent. Pathologically considered, Mr. Sartin appears to view the disorder in a double light, in some instances as consisting of an acute rheumatism of the muscles of the loins, and at others as congestion of the meninges of the cord. In the first-named condition it is found to be amenable to treatment, but in the other form complete recovery seldom occurs. Of the origin of this paralytic affection there does not seem to be any settled determination in the minds of those who have studied it, and the views entertained at the present time respecting it are as various as they are conflicting. Thus, while some regard the disease as intimately connected with protracted rest, others attribute it to over-exertion and fatigue.

There is considerable difficulty in reconciling these diverse conditions with a logical theory of causation, and it would be more consistent to regard them as mere coincidences in the history of the malady. The circumstances which brings the disease "Kumree" into a possible etiological relationship with cerebro-spinal meningitis is that which refers it to the pernicious influence of cold biting winds. This last view of the etiology of the disorder accords with the observation of Percival, and with the atmospherical condition existing at the time of the outbreaks under consideration, as well as with the common prevalence of the disorder during the cold months of spring and autumn. Whatever may be the nature of the epizootic constitution of cerebro-spinal meningitis, the foregoing facts suggest in the strongest possible manner the existence of a controlling atmospheric cause.

### *Symptomatology.*

The phenomena of the disorder under consideration are no less remarkable than the obscurity of its origin.

In my experience premonitory indications of sickness have been but rarely observed. In the majority of instances the accession of the malady has been sudden, and absolutely without warning of any description. Animals seemingly in the best of health, while still feeding, and without any semblance of sickness to-day, have been suddenly and helplessly stricken on the morrow. Where a prodromal period is recognised it is usually

characterised by slight paresis, involving more especially the posterior half of the body, but in some instances the anterior segment also shows signs of impaired nervous function. The afflicted animal is noticed to catch the toe in walking, and sometimes even to lurch forward, or roll from side to side, or even to fall down. Power and co-ordination of movement are quickly regained, however, and the beast recovers itself and proceeds on its journey, soon again to exhibit the same want of control as before, and to regain its legs and full powers of progression. In this uncertain dynamical condition the animal may continue for two or more days, during which time food is freely partaken of and the general health remains unimpaired. Other examples display a more marked, complete, and abiding disablement. When down there is an utter inability to rise, but on the patient being lifted up, the standing posture is maintained without assistance. Muscular movement, however, is greatly interfered with, and progression is only possible by the aid of assistance and support.

Some of the cases in the Essex outbreak were able to walk to the stable after being raised to their feet, but the gait was very unsteady and the movements slow, feeble, and inco-ordinate; the toes were trailed on the ground, the legs crossed, and the body swayed at each step from side to side. In this state some continued for weeks and others for months, all the while exhibiting, in other respects, undisturbed health. Food was freely partaken of, secretion and excretion were regularly performed, and the functional activity of the organs of respiration and circulation was in no way impaired. Such cases as these either result in convalescence after protracted paresis, or in complete paralysis, associated with acute cerebro-spinal irritation, ending in convulsions, coma, or death from collapse or visceral complications. In the majority of cases the first symptoms of disease are severe and pronounced. The stricken animal is without warning rendered more or less completely helpless. More commonly paralysis seizes the posterior half of the body, from which it may gradually or rapidly extend in a forward direction until all the muscles of voluntary motion are partially or completely disabled. Less frequently the disablement involves the entire system. The animal falls to the ground in a helpless condition, in which state he continues. Sooner or later marked restlessness is displayed, and the pained and irritated condition of the spinal centre is repeatedly manifested by struggling and fighting movements of the extremities. Scattered groups of muscles, or those of an entire region, or of the whole body, are excited to spasmodic contraction, usually of a clonic but sometimes of a more durable and tonic character. At this time the parts involved are

hard and rigid, and the surface markings of the intermuscular spaces are specially defined. In some of Mr. Daniells' cases the muscular spasm was chiefly noticeable in the cervical region, when the head would be drawn towards the breast and the neck arched, as is ofttimes seen in attempts at vomition. So pronounced was this phenomenon in one instance that Mr. Daniells was induced to suspect acute gastric disturbance, and in this interpretation I quite concur. I am led to this conclusion partly by considerations in regard to the cerebro-spinal meningitis of man, where inflammatory irritation of the pneumogastric centre is commonly expressed by sickness and vomition.

The condition of pleurosthotonos, or lateral flexion of the spine, and opisthotonos, were strikingly marked in some of the Essex cases. Cutaneous hyperæsthesia is not unfrequently observed in the course of the disorder, sometimes earlier, sometimes later. Pinching or pressure applied to the skin is in some stages of the acute form of the disorder sufficient to provoke painful paroxysms of muscular spasm, or even general convulsions.

The restlessness and irritability displayed in the early part of the attack is after a time attended by cerebral excitement. The patient now becomes watchful, has a keen anxious expression of countenance, and displays a morbid attentiveness to surrounding objects. This extreme watchfulness soon gives way to dulness, to be followed still later by stupor, and finally coma. In the course of this stage of the disorder the pupillary openings are variously affected. Sometimes the irides act sluggishly, or not at all; at others they display extreme morbid activity, and reduce the orifice to its narrowest limits. Delirium, and sometimes phrenzy, are often the closing manifestations of cerebral disorder. Incontinence or retention of urine, one or the other, have been frequently noticed as conditions of visceral paralysis. Paralysis of the muscles of the face, and consequent loss of prehensile power in the lips, is now and again observed in the course of the affection. Under these circumstances the food is seized by the teeth, reminding one of the mode of prehension pursued by the dog and other carnivorous creatures; and in the act of drinking water can only be secured by plunging the face for some distance into the pail in which it is held, so as to allow of the water rising high into the mouth, and being brought more immediately under the control of the tongue. From the long retention of food in the mouth after mastication, and its occasional rejection, it is highly probable that the muscles of deglutition are also sometimes more or less disabled. The respiratory and circulatory functions are singularly free from disturbance, excepting in the more acute and rapidly fatal cases, and in

the final stage of the more abiding attacks, when they become manifestly embarrassed. The most interesting negative facts in the semeiology of the affection pertains to the almost perfect tranquillity of the heart's action and undisturbed thermal condition of the body under all the circumstances of complete paralysis. The accession of the disease is not marked by any notable rise of temperature or febrile phenomena. It is not until serious complications arise that the body heat becomes seriously augmented. In the majority of cases to which my attention has been directed the internal temperature has not exceeded 100° throughout the attack, and in some instances there have been periods when a lower range prevailed, notwithstanding that no abatement was observed in the paralytic state. Any material rise of temperature is usually sudden, and, being persistent, often marks a fatal termination. It is accompanied by a corresponding increase in the respiratory and cardiac movements, and general systemic disturbance. Serious thermal changes mark an extension of the meningeal disturbance, and a more decided invasion of the cerebro-spinal centre.

The urine varies very considerably both in its physical properties, chemical reaction, and specific gravity. It is sometimes of a bright straw colour, perfectly clear, transparent, free from suspended matter, and limpid like water. In other instances it is turbid, ropy, of a milky aspect, and contains a considerable quantity of suspended salts. Its specific gravity ranges between 1·004 and 1·040. In no case was albumen, bile, or sugar recognised in it, nor were there any histological elements discoverable. Microscopical examination of the blood gave a negative result, excepting in one instance, when numerous micrococci were found in it. As, however, the animal from which this particular sample of blood was removed had upon it a number of large bed sores, it is highly probable that the presence of organisms referred to were associated with the surface wounds, and not in any way essential to the disease.

### *Morbid Anatomy.*

The body rapidly undergoes putrefactive changes, especially where bedsores are present, after death giving rise to gaseous elimination into the subcutaneous and other tissues, and copious sero-sanguineous discharges from the outlets of the body.

*Peritoneum.*—The peritoneal cavity may contain only a normal quantity of pale serosity, or it may hold several pints of blood-stained fluid. In the former case the membrane itself is free from change, in the latter it is deeply stained in its more depending parts, and presents punctate or patchy subperitoneal

blood extravasations, as well as more or less deep linear staining in the direction of the mesenteric veins.

*Stomach and Intestines.*—Sometimes normal, more frequently mucous layer studded with patchy hyperæmia and occasionally blood extravasations with corresponding necrosis of epithelium.

*Liver.*—Usually enlarged, generally congested, œdematous, and soft. Section shows lobules swollen and outline obscured, imparting to the surface a homogeneous aspect. Bile ducts deeply stained, veins filled with soft black coagula, or dark watery serosity, or both.

*Spleen.*—Simple venous engorgement associated with swelling and stretching of capsule. Interstitial hæmorrhage with here and there smaller or larger areas of collapse. General collapse of spleen is seen in those cases where intestinal hæmorrhage is profuse.

*Kidneys.*—General hyperæmia with or without serous infiltration and softening; sometimes textural cohesion overcome by œdema, in which case they readily leave the capsule and exhibit a squat, almost diffluent appearance.

*Lungs.*—Present local or general enlargement with corresponding dark discolorations. Universal vascular engorgement with increase of density. Pulmonary tissue soft and easily broken down. Sectional surface reveals dark areas of hæmorrhagic infarction. Veins contain black watery blood. Arteries—soft black diffluent coagula. Bronchial tubes filled with blood-stained foam. Mucous layer œdematous, soft, and easily lacerable, often sphacelytic.

*Heart.*—Colour dull brownish red, or pale reddish grey, soft in consistence and friable. General serous infiltration and partial discoloration of muscle. Left ventricular subendocardial hæmorrhage; less frequently subpericardial hæmorrhage.

*Brain.*—On removal from the cranium the natural contour is somewhat disturbed by a tendency to divergence of the hemispheres and a disposition to spread. This is associated with an appearance of moisture and a somewhat polished aspect of the sectional surface of the nervous matter. When cut through the puncta vasculosa are abundant and discharge a thin watery blood, and the tissue of the organs displays an abnormal stickiness and want of cohesion, as well as a slightly yellow or blood-stained appearance. Under a high temperature and humid atmosphere the brain rapidly becomes soft, and changes to a greenish yellow hue.

*Dura Mater.*—Dull pale red congestive hue.

*Arachnoid.*—Slightly opalescent in parts, more especially in the basal portion of visceral layer, here and there raised by subarachnoid effusion. No plastic or puriform exudation.

Arachnoid and subarachnoid space contains a greater or less amount of straw-coloured or blood-stained serosity.

*Pia Mater.*—Vessels universally engorged, imparting to the surface of the brain a dark red hue; sometimes numerous and extensive blood extravasations into the texture of the membrane. On the condition of the vessels of the pia mater the following is an extract from my pathological record:

"Notwithstanding that the pia mater in this case displayed intense vascular engorgement after death, the animal did not manifest acute cerebral disturbance during life. In the preceding case sudden and complete coma with paralysis existed during life, while the vascular engorgement of the membrane was, comparatively speaking, slight. The degree of cerebral disturbance observed after death, it would seem, is not in the direct ratio of the vascular fulness."

*Spinal Cord.*—In this part of the centre the lesions are of the same nature as those described in the brain, but, as a rule, much more constant and pronounced. The subarachnoid fluid is much more abundant. The dura mater is more intensely reddened, the pia mater more congested and extensively infiltrated with blood, and the nervous tissue softer and more diffluent.

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## ON PLANTS IN RELATION TO ANIMALS.

By Professor James Buckman, F.G.S., F.L.S., &c.

(*Continued from* p. 453.)

The natural order we have now to describe may be set down as follows:

*Rubiaceæ—Stellatæ = Galiaceæ*, which may be described as herbs with more or less quadrangular stems. Leaves whorled, small, and entire. Flowers small, mostly in terminal heads. Calyx small, combined with the ovary. Corolla monopetalous, mostly of four, sometimes of five spreading lobes, which give some of the plants the star-like aspect from whence they have been named *Stellatæ*. The fruits are small and usually dry, of two combined carpels, having a single seed in each.

We have four native genera which are arranged by Bentham as follows:

*a.* Corolla rotate, the tube very short or indistinct.

| | |
|---|---|
| Fruit fleshy, corolla usually 5-lobed . | 1. Rubia. |
| Fruit dry, corolla usually 4-lobed . | 2. Galium. |

*b*. Corolla with a distinct tube, as long or longer than the lobes.

Fruit crowned by four teeth of the calyx.
Flowers on head surrounded by an involucre . . . . . 3. SHERARDIA.
Calyx not distinct. Flowers in panicles . 4. ASPERULA.

1. *Rubia peregrina* (Madder).—Is a local plant in the south-west of England, South Wales, and the east coast of Ireland. Our native species has a perennial root-stock, which latter is capable of yielding a red dye, and hence the generic name.

Bentham says:

"The dyers' madder (*R. tinctoria*), extensively cultivated in southern Europe for the scarlet dye furnished by its roots, differs but very slightly from the wild madder, and may be a mere variety."

The following description of the genus is by Dr. Masters:

"RUBIA.—One of the genera of *Galiaceæ*, so named from the Latin *ruber* red, in allusion to the colour of the roots. The species are perennial herbs, occasionally somewhat shrubby at the base, and rough with stiff hairs. The flowers are axillary or terminal; the limb of the calyx entire or scarcely developed; the corolla rotate, five-parted; the stamens five, partially protruding from the tube of the corolla, and the styles two, confluent at the base, and stigmas button-like. Fruit somewhat globular, juicy, two-lobed, two or rarely one-celled, each cell containing a single seed.

"The dye known as madder consists of the dried roots of *R. tinctorum*. In the living roots the colouring matter is yellow, but this becomes red on drying. The best madder is imported from the Levant, but some comes from Holland and France. The dye is much used in the latter country under the name of garance. Some of the Indian species also yield a red dye.

"Madder has sometimes been stated to possess medicinal virtues, these, however, are so slight as to be now disregarded. The bones of young animals fed on madder become tinged with a red colour, and physiologists avail themselves of this fact in the researches on the mode of growth of the bones. The stem and leaves of *R. tinctorum* are used in France for polishing metal work, for which purpose their stiff hair adapt themselves. The leaves and herbage also are used as fodder for animals. One species, *R. peregrina*, is a native of the south-west of England. It is a straggling herb, trailing over bushes by means of recurved prickles projecting from the edges of the leaves and stem. It greatly resembles the species of *Galium*, to which genus, indeed, the present is very closely allied; but from which it may be

distinguished by the fleshy fruit, destitute of prickles or hairs, and by the five not four-parted flowers."*

The curious reflexed hooks on the margins of the leaves, and the inflexed hook-like terminations to the divisions of the corolla, is a curious and interesting feature in so many of the Stellatæ. These serve to connect the present genus with that of Galium, which does its climbing through this hooked arrangement.

2. Galium = Bedstraw.—Is a somewhat extensive genus, mostly of small but very graceful and interesting herbs. Nearly 200 species have been described, of these fourteen are British, some species of which will be found occupying and adorning almost every meadow, bank, or hedge-row. The generic name is derived from the Greek word γαλα milk, as it was formerly used as rennet is at present for curdling milk in the process of cheese-making, and it is even said to be employed at the present time in parts of Cheshire and Gloucestershire.

The plants all agree in having quadrangular, more or less weak and flexile, stems, hence many of them climb in hedges holding on by the curious reflexed hooks which are found on the margins of the leaves.

These plants, in as far as our native species are concerned, may be referred to as follows:

*a.* Flowers yellow.

1. *Galium cruciatum.*—Four-leaved bedstraw.
2. „ *verum.*—Ladies' bedstraw, yellow bedstraw.

*b.* Flowers white, sometimes flushed slightly with green or yellow.

3. *Galium aparine.*—Goosegrass.
4. „ *tricorne.*—Corn bedstraw.
5. „ *mollugo.*—Hedge bedstraw.
6. „ *saxatile.*—Heath bedstraw.
7. „ *palustre.*—Marsh bedstraw.

1. The four-leaved bedstraw, though a somewhat local plant, is sometimes very abundant. It is distinguished by its whorl of four somewhat broad leaves, which are sessile and fringed with hairs.

2. The ladies' bedstraw is so called from the fact that its delicate flexile stems were formerly much employed for stuffing beds which were so soft as to be suitable for a lady. Its roots afford a fine red dye, and the herbage has been much employed for coagulating milk; hence Gerarde tells us "The people of Tuscanie or Heturia doe use it to turne their milk, that the cheese which they make of sheep's and goats' milk might be sweeter and more pleasant in taste, and also more wholesome."

* 'The Treasury of Botany,' pp. 994, 995.

He adds: "The people in Cheshire, especially about Nantwich, where the best cheese is made, doe use it in their rennet, esteeming greatly of that cheese above other made without it."

3. Goosegrass is so called from the fondness of the young gulls for the chopped herb, upon which they thrive amazingly. It is commonly met with about hedges and in cultivated ground, so much so that frequently a patch of potatoes may be smothered by this weed. Its purplish fruits by reason of its bristles readily attaches the seed to the coats of animals; these berries when roasted are said to make a kind of coffee beverage not to be despised.

4. The corn bedstraw has, we think, been introduced into arable cultivation with foreign seeds. It is much like the former sort, but its fruits, which are for the most part in threes, reminding one very forcibly of the three balls which are used as a pawnbroker's sign; these fruits are not hairy like those of the goosegrass, but is granulated. This is sometimes a pest in the corn fields, as it climbs up the stalks of which and by its weight helps to lodge it. The two last forms are indifferently known as goosegrass, and have a reputation for many virtues. Mrs. Lankester tells us that our old friend Gerarde seems to have retained a belief in many of the virtues of goosegrass. He says, "The juice which is pressed out of the seeds, stalkes, and leaves, as Dioscorides writeth, is a remedie for them that are bitten of the poison, some spiders, called in Latine *phalangia*, and of vipers if it be drunk with wine; and the herbe stamped with swines' grease wasteth away the kernels by the throte. Pliny teaches that the leaves being applied doe also stay the abundance of blood issuing out of wounds. Women do usually make pottage of clevers with a little mutton and otemeal to cause lanknesse and keepe them from fatnesse."

According to Linnæus the stalks are used in Sweden as a filter to strain milk through. Dioscorides relates that the shepherds made the same use of it in his time. It is considered in rural districts to be a purifier of the blood, and for that purpose the tops are put into spring broth. The expressed juice of the herb, taken to the amount of four ounces or quarter of a pint night and morning during several weeks, is supposed to be valuable in cutaneous disorders. The seeds are a substitute for coffee. The roots, like most of the genus, will dye red; and eaten by birds, are said to have tinged their bones of that colour.

5. The hedge goosegrass is quite a tall hedge plant, which is frequently met with in all parts of England, where, indeed, it would frequently become a serious hedge-row weed, but the lightness of its stems and the smallness of its foliage prevents

As we see it climbing up the hedges displaying its delicate white stellar flowers we cannot help admiring it.

6. The Heath bedstraw is another elegant form, but, unlike the former, it does not seek the company of the hedge-row plant, but grows upon the open common, where, indeed, it often forms a conspicuous and pleasing object. Its clinging to commons is a curious circumstance, as it does not seem to prefer one soil or geological formation to another; the common may be moist or dry, peaty or stony, at a low or high elevation, yet there will our pet little plant be found.

7. The marsh goosegrass is very widely diffused, but its position is in or on the borders of the swamp over Europe and Russian Asia. This species, which is named *Galium palustre*, would seem to be a near ally of *G. uliginosum*. Indeed, it may be said of the genus that it consists of very numerous species, some of which afford but slight differences. It is yet interesting to observe that there is scarcely a plot of ground, however poor or however highly cultivated, whether wet or dry, but may be the habitat of a Galium.

We have, then, in these members of the Stellatæ a group of plants of varied utility, though not now used so much as formerly, still at one time they bore a very varied repute as being used for dyes, their stems and foliage being employed in upholstery, while not a few of them were made use of as special foods. All the forms have a reputation for coagulating milk, and, indeed, it is asserted that the yellow forms yielded the rich colour to the fine old-fashioned Cheshire cheese before the time that the filthy annatto became so extensively employed.

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## THE DEGREE OF LL.D. AND THE VETERINARY PROFESSION.

By A. E. Macgillivray, M.R.C.V.S., Banff.

A paragraph appeared in the *Veterinary Journal* for May last, stating that the above degree had been conferred on our highly gifted *confrère* Mr. George Fleming—an announcement which could not fail to gladden the heart of every true and well-thinking member of our profession. This paragraph, however, is slightly inaccurate in stating that "this is the first time that a university has acknowledged the claims of veterinary science to the highest honours the Senate can confer." A reference to the *Veterinarian* for March, 1869, will discover that the "Contributions to veterinary science (*of the late Mr. Thomas Strange-*

*ways*), although not numerous, always commanded respect among the faculty. They also gained for him the honorary degree of LL.D."

It affords me extreme pleasure in thus bringing once more to the front the honour conferred upon my highly respected and greatly lamented teacher, Professor Strangeways, for if ever the profession had a thorough friend and well wisher it was Strangeways!

*To the Editors of the 'Veterinarian.'*

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## IS "DOCKING" DOOMED?

By "Common Sense."

The *Standard* of Monday, July 2nd, contains an announcement of the successful prosecution at the Leicester Borough Police Court of a "Farrier," and the landlord of the Great Northern Hotel, the former for having docked a horse, and the latter for having caused the operation to be performed. Fines and costs were inflicted, amounting in the aggregate to £3 1s. Defendants admitted the facts as to the committal of the act, but denied the cruelty. The solicitor acting on behalf of the "Royal Society for the Prevention of Cruelty to Animals" stated that whilst "they (the Society) did not wish to press severely against the defendants, *it was necessary to put a stop to this practice.*" The case for the prosecution was further strengthened by the appearance in the witness box of "Professor Pritchard, one of the Council, and one of the Examiners of the Royal College of Veterinary Surgeons," who stated "that the operation of 'docking' was unnecessary, and gave a great deal of pain to the animal." Asked by the magistrates' clerk—"What is your opinion as to the cruelty of the operation?" he replied—"In my opinion it is as exceedingly cruel as it is unnecessary." Contrary evidence after this fell flat, and dire results followed, as before stated.

This kindly warning from the Royal Society for the Prevention of Cruelty to Animals, and this emphatic action on the part of the Leicester Bench, demand attention. The practice of docking may be said to be universal in this kingdom, and by most considered a necessary act. It would be, perhaps, useless to deny that some degree of pain must be occasioned, but I altogether demur to the sweeping condemnation of the practice as advanced by the "Professor," believing as I do—a belief based upon twenty-eight years' experience—that when humanely performed, even without the aid of anæsthetics, there

need only be a trifling amount of very transitory affliction. But the main point of this communication lies in the reflections upon the Society's declared intention to "put a stop to this practice." This means—taking the above story as a sample—much trouble and some expense to those of us who persist in complying with the wishes of our clients. As the question—which I forbear enlarging upon—is of deep importance to the profession, may I opine it to be of sufficient gravity to elicit an editorial, giving to us counsel on the matter? Is the Royal Society for the Prevention of Cruelty to Animals, in its officiousness, about to dictate to us what operations shall be discontinued? I don't think "unnerving," "firing," &c., are often wantonly performed; there is generally some reasonable expectation of a good to follow, alike beneficial to the animal and its owner, but these, and such as these, may next be imperatively interdicted by the "hands off" of this Society.

## Pathological Contributions.

### CATTLE PLAGUE.

This disease has appeared on the Russian frontier so near to Germany that the latter country have prohibited every description of animals except horses, asses, and mules, poultry even have been excluded if coming from infected districts, and those which are admitted are examined to see that they have no dung on the feet. Serious outbreaks of cattle plague have been reported in several provinces in Russia, and one has been reported near to the German frontier at Radom in Poland.

### PLEURO-PNEUMONIA.

The reports concerning the action taken to eradicate this disease in the United States of America are very unsatisfactory, in the City of Baltimore it is stated that although the cattle in dairies are known to be affected, the slaughter of the diseased animals is not carried out. In the Netherlands cases showing the past existence of the disease in the lungs are still being detected, 33 animals giving evidence of the disease after slaughter during the four weeks ending July 14th.

## FOOT-AND-MOUTH DISEASE.

The counties in which this disease has been most prevalent during the past month are Lincoln, Huntingdon, Northampton, and the West Riding. In Lincolnshire the disease is most prevalent among the sheep, and the disease has been so generally spread that the Privy Council have declared two of the petty sessional divisions infected areas.

On the Continent extensive outbreaks are still going on in the Province of Aquila in Italy, no less than 25,338 sheep and 114 swine were returned affected in one week; in Switzerland, where the disease has been reported for some time, 115 outbreaks were reported in the two weeks ending July 15th.

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## Facts and Observations.

Cattle Disease and Cattle Importation.—A correspondent writes:—"The question of the importation of cattle from infected countries is about to be dealt with in a practical manner by those interested. Within the past few days several conferences have been held between influential representatives of the agricultural, shipping, and commercial interests, with the view of making arrangements for the importation of 65,000 tons of dead meat, that being an equal quantity to that of the meat from the live cattle from scheduled countries. It is expected that if a definite project calculated to attain the object in view be submitted to the Government they will be disposed to accept it as relieving them from many great difficulties in dealing with this much vexed question. In any event there can be no doubt that any movement for the importation of fresh meat upon a substantial scale must yield beneficial results."

Conviction of a Farmer for Poisoning Two Calves and a Mare.—At Shrewsbury Quarter Sessions on July 3rd, Joseph Cartwright, farmer, of Whixall, was found guilty of having poisoned two calves, the property of Cornelius Langford, farmer, in April last; also of having poisoned a mare, the property of another farmer named Simmonds, in February, 1882. In each case arsenic was surreptitiously put into the animals' food by the prisoner, who had a spite against the prosecutors. He was sentenced to seven years' penal servitude.

Cattle Plague Remedies.—Consul Cameron, in his official report on the trade and agriculture of Java, states that the attention of the Government has lately been drawn to a new method of combating the cattle plague. Dr. van der Heyden, the originator of the process, who has employed his method in Japan for curing other infectious diseases, has, at the invitation of the Netherlands-India authorities, experimented in Java with some success on animals attacked by this epidemic. The process consists in the intravascular injection of iodium in the proportion specified to the weight of the animal infected. It is added that the injection has, according to Dr. van der Heyden, the effect of completely annihilating the living organisms present in the diseased body.—*Daily News, July 16th.*

Diseased Meat.—The *Medical Times* says that a veterinary surgeon, a licensed victualler and a butcher, have been committed for trial by the magistrate at Stratford-on-Avon on a charge of perjury. The defendants were witnesses in a case (noticed in these pages) against a Town Councillor, charged with being in possession of diseased meat, and upon their evidence, which is alleged to have been false, the latter was convicted.

Disease among Buffaloes (Rome, July 4th).—A disease has broken out among the buffaloes at Maccarese, near Ostia, and has in four days carried off about 260.

Singular Freak of Nature in Bury.—Yesterday a unique case of *lusus naturæ* in a calf was discovered at Wm. Scott's, Heap Fold Farm. An Ayrshire cow, which had gone her full time, was, early in the morning, observed to be in labour, and it was found that there was a wrong presentation of the calf. The case proved, as anticipated, one of malformation of a fœtus-in-utero. This curious monstrosity had one head, one neck, four fore legs, two trunks (bodies), four hind legs, and two tails, all of which were well developed and not rudimentary as generally happens in some of the supernumerary limbs. Mr. Briggs and Mr. Packman were in attendance, but they failed to deliver the cow of her mis-shaped progeny, in consequence of its great size, although embryotomy to the extent of amputating four of the limbs was performed.—*East Lancashire Echo, Monday, July 16th*, 1883.

# THE VETERINARIAN, AUGUST 1, 1883.

Ne quid falsi dicere audeat, ne quid veri non audeat.—CICERO.

## GLANDERS IN THE OX.

IN another part of the Journal we publish the notes of a case which was tried at Wolverhampton on July 13, in respect of which the issues were, first, Is glanders a disease which may affect a cow? and next, Is it an offence under the Contagious Diseases (Animals) Act to move a cow affected with glanders along a public road, or expose it for sale in a market?

On the first point the evidence is of necessity very conflicting in its character; excepting the few experiments which have been conducted in this country, we are compelled to refer to our continental authorities for the facts which bear upon the susceptibility of different animals to the contagium of glanders.

Beyond all question the disease, glanders or farcy, is essentially a malady belonging to the horse family, and, as one of the witnesses at the trial which we have referred to said, people would leave a cow in a field with a glandered horse without apprehension of danger. Experience, however, has shown that man may become a victim to the deadly disease; and experiments have proved that sheep, goats, and mice are susceptible. Oxen are with difficulty brought under the influence of the infection, and swine are practically proof against it—a fact which is rather remarkable, considering the susceptibility of man.

It may be conceded that a cow may be the subject of glanders, but all experience in this country is opposed to the idea of the existence of the disease in cattle, and we should demand as proof of the presence of the disease something beyond a similarity of morbid appearances; in short, the test of inoculation. If the nasal discharge from the diseased ox produced undoubted glanders in a horse or ass, nothing

more could be demanded, and nothing less should be accepted as evidence.

Granting that the cow in question had glanders, the next question is, Did the man in charge of the animal commit an offence against the Contagious Diseases (Animals') Act by sending the animal by rail, or otherwise exposing it? and the answer is clearly in the negative. For the purposes of the Act glanders is a disease of horses, asses, and mules only, and it is no more an offence to drive a cow with glanders along a road than it is for a man with that disease to walk along a street. If glanders became a common disorder of cattle, it would probably be dealt with under the Act as it is in regard to the horse. There is not much risk, however, of this complication arising, and in the meantime most people will be ready to admit that the possible offences under the cattle diseases laws are sufficiently numerous to render it quite unnecessary for veterinary inspectors to exercise their ingenuity in inventing new ones.

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## Extracts from British and Foreign Journals.

### THE SUCCESS OF MR. CHAPLIN'S MOTION.

Not merely the agriculturalists of this country, but the community at large, are greatly indebted to Mr. Chaplin for the thorough manner in which he laid before the House on Tuesday night the case on behalf of those who contend that it is the duty of the Privy Council to put in force more effectively than they have hitherto done those provisions of the Contagious Diseases (Animals) Act, 1878, which gave them power to prohibit the importation of living animals from countries known to be infected with disease, or where sufficient precautions against disease are not enforced. In previous debates that have taken place on this great subject, both in the Upper and Lower Houses, and also in the replies that have been given on behalf of the Government to various deputations that have approached the Department, stress has been laid by the authorities on the alleged deficiency in the Act to give the requisite powers to carry out the restrictions asked for. It was said by Lord

Carlingford, and also by the Lord Chancellor, that, without fresh legislation, the Privy Council would not feel themselves justified in taking the measures demanded by Mr. Chaplin and his supporters. Vague hints were thrown out that the Government, in expressing this view, were upheld by the opinion of the law officers of the Crown. However, it has never been distinctly stated that the opinion of the law officers of the Crown has been formally taken upon the construction of the 35th section of the Act, which Mr. Chaplin asserts to give those powers that he asked to have exercised. In the debate on Tuesday night this point, if not entirely dropped by the opposers of the motion, was very little insisted on, Mr. Dodson being the only speaker who adverted to it, and he only did so in an incidental style.

To judge from the tone of the debate, it would seem as if the House had pretty well made up its mind to accept the motion. That this must have been so is moreover rendered pretty clear, not only by the fact that several well-known supporters of the Government voted for the motion, but that there must have been a considerable number of absentees who would not take upon themselves the responsibility of going directly counter to the interests of so large an industry as the agricultural, and indirectly to the interests of the community at large. Mr. Arnold, who led the opposition to the motion, affected to speak as the representative of the great body of the people, meaning, of course, thereby the consumers, who naturally comprise everybody. A careful perusal of Mr. Chaplin's exhaustive speech, in which he supported all his main arguments by a forcible and convincing array of facts and figures, can scarcely fail to lead a reasonable person to the conclusion that the opponents of the motion from the so-called consumers' point of view have really no case at all. He was able to show that the amount of animal food which would be hindered from coming into this country, if the restrictions he asked for were adopted, would not be more than 4 per cent. of the total quantity consumed in a year; while he was also able to show a very strong probability that, by an increase in the dead meat trade—a great development of which has already taken place during the last six months—together with the addition to our home herds, which would follow from the security breeders would feel when protected from the importation of disease from abroad, diminution in supply would be rapidly made up to the consumer. Mr. Chaplin enforced his arguments by the ex-

perience of Mr. Hubert Little, a well known and highly respected agriculturist, who detailed at length the loss in his own herd and flock from an outbreak of foot-and-mouth disease. Mr. Little's experience is that of numerous other breeders throughout the country. Only last week we had the privilege of inspecting the farm of a spirited agriculturist in a west midland county. This gentleman informed us that he gave up breeding and took to buying and feeding some years ago, entirely in consequence of the losses he had sustained through an attack of foot-and-mouth disease. The price of store stock had, however, recently ruled so high that he would be glad, he said, to resume breeding, and should certainly do so as soon as he felt sure that the Government had taken proper precautions to prevent the importation of disease from abroad. This is the feeling of most stock farmers; and, looking to the early maturity of fat stock in the present day, it is safe to assert that the interregnum, if there be one, during which, owing to restrictions in the importation of foreign animals, the price of meat would be raised to the consumer, would be very short.

Mr. Chaplin's motion—at all events that part of it upon which the discussion mainly turned—is substantially the same resolution which was passed some time since by the Central Chamber of Agriculture, and which representatives from fifty local chambers from all parts of the country waited on Lord Carlingford in May last to lay before him. On that occasion he gave this influential deputation no encouragement and no hope; and it is scarcely too much to say that the refusal of the Government to entertain the proposition then put before them aroused a feeling amongst agriculturists throughout the country, which greatly contributed to the success of Mr. Chaplin's motion on Tuesday night. In saying this we do not wish to detract from the effect of that honorable gentleman's speech, of which we have already expressed the highest opinion. He, however, would be the first to admit that the action of farmers, by means of their representatives in the chambers of agriculture, paved the way for his efforts, and so contributed greatly to the success which has at last attended them. It was, perhaps, impossible for the Government after the line taken up by the Privy Council, not to oppose Mr. Chaplin's motion. They must, however, now be convinced of the reality and depth of the feeling which their refusal to listen to reasonable demands has roused in the breasts of the agricultural interest, and this, as the debate and division list proved, independently of political views. The ungenerous attempt made by Mr. Arnold

to insinuate that the supporters of the motion were desirous to reintroduce protection, and so to gain over to his side men who, while they acknowledge the importance of keeping our flocks and herds free from disease, are staunch advocates of free trade, signally failed. That the attempt should have been made at all shows how weak the opponents of the motion must have felt their case to be. It only now remains for the Government to loyally carry out the wishes of Parliament. Already in the present session, in reference to diseases of quite another character, they have shown, as many think, an undue and an unseemly alacrity to give effect to an abstract resolution, on which far greater diversity of opinion exists than in the case of the motion carried by Mr. Chaplin; and, following their own line, it is clearly their duty to impose at once the restrictions on the importation of foreign stock which the representatives of the people demand; and so to give that security to the agriculturists which they have long looked for, and ultimately, as undoubtedly must be the case, increase and cheapen the meat supplies of the nation.—*Field.*

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## THE LAHORE VETERINARY COLLEGE.

In a recent issue we noticed the success which has attended the lately opened Veterinary College at Lahore. Men are sent thither from all parts of India—Sind, the Punjab, the Native States, the N.-W. Provinces, Central India, &c. Many are given a subsistence allowance by Municipal Committees, who are having them taught with a view of utilising their services in the different towns over which they preside; others pay their own expenses, and will start, after passing their examinations and receiving their diplomas as qualified practitioners, on their own account; while yet a third class is composed of men sent from various regiments of the Bengal Cavalry. The number of applicants for admission to the College as students is great; and the hospital in connection with it, for horses and other beasts, is quite full. At present the lectures are delivered in the vernacular, but if a course could be arranged, in addition, in English, we understand that a large number of Europeans would be only too glad to have the opportunity of attending it. This, however, is impossible with the present staff, which is already worked to its utmost limit. The importance of teaching veterinary science can be realised by turning to a few figures. In the Punjab the value of the animals reported as having died from cattle disease, &c., is, on a low

estimate, nearly three lakhs of rupees per annum. To this we must add the value of animals whose deaths have not been reported to the police, and this will be very considerable, as the cultivators and others most strongly object to reporting, having still a vague idea that returns are always intimately connected with taxation. Then, too, we must add the extra expense incurred by the cultivators in feeding animals while they are sick, and getting them into condition for working when they recover, and the indirect loss which arises from land lying uncultivated while beasts of draught are unfit for work. Bearing all these facts in mind, we shall not, we think, be exaggerating the sum lost by the Punjab, directly and indirectly, through cattle disease, &c., if we fix it at about ten lakhs of rupees. The importance of an institution which will train men in a science by which this loss may be diminished is, indeed, great, and it is to be hoped that Government will be able to see its way to give the Lahore Veterinary College a liberal support.

The following is the result of the examinations of veterinary students:

Out of 38 candidates 30 passed as First-class veterinary assistants, and 6 passed as Second-class veterinary assistants.

The students had a written examination on the following subjects:—1. Materia Medica and Chemistry. 2. Anatomy and Physiology. 3. Bovine Pathology. 4. Veterinary Medicine and Surgery.

The written examination lasted two days. The practical examination lasted three days, and the students were tested in the following subjects:—1. Knowledge of Drugs and writing Prescriptions. 2. Practical Anatomy in Dissecting Room. 3. Practical Medicine and Surgery. Knowledge of different forms of horseshoes, and some minor operations. Diagnosis of disease, and the different forms of unsoundness.

Dr. Center, President of the Examination Board, distributed the diplomas to the successful candidates, and gave away the prizes in the different subjects on the morning of the 23rd May at the Veterinary School.—*Civil and Military Gazette*, LAHORE.

# THE NATURAL HISTORY OF THE LIVER-FLUKE AND THE PREVENTION OF ROT.

By A. P. Thomas, M.A., F.L.S., Balliol College, Oxford; Professor of Natural Science in the University College, Auckland, New Zealand.

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(*Continued from p.* 470.)

In his report to the 'Journal of the Royal Agricultural Society,'* Mr. Finlay Dunn estimates that the same number of sheep died or were sacrificed from rot during the following year. As this is equivalent to the loss during each year of about one tenth of the total number of the sheep in the United Kingdom, and represents the loss of six or eight millions sterling† per annum, the serious nature of the epidemic will be only too readily seen. Such a loss would be most grievous at any time, but was especially so at a time of bad seasons and wide-spread agricultural depression.

A portion of the loss falls of course upon the consumer, as is shown by the increase in the price of mutton. Furthermore, the quality of a portion of the supply which comes to the market is necessarily poor.

When the disease had spread so widely and had become so exceedingly destructive, it was doubly necessary that we should bestir ourselves and try all possible preventive means.

But what were the right measures of prevention? Here, unfortunately, was the great difficulty. Nothing exact had been found out as to the way in which the fluke entered the sheep, and we had to contend against an insidious enemy who was invisible to us, to strike blindly and in the dark.

In this state of uncertainty it was a matter of national importance that the whole question should be investigated, in order that it might, if possible, be discovered what were the proper preventive measures to be employed. The Council of the Royal Agricultural Society therefore provided the funds needful to procure costly but indispensable apparatus and material. The investigation thus originated began in the summer of 1880, and was brought to a successful close in the autumn of 1882.

What was really known in 1880 came very briefly to the following. The liver-rot was a parasitic disease due to the

* Second Series, vol. xvii, p. 141.

† It is very difficult to ascertain the real loss in money, as rotten sheep are frequently sold for food, though at a considerable loss. But in very many instances the animals were sold merely for the price of the skins.

presence in the bile-ducts of the livers of the diseased animals of great numbers of liver-flukes. Animals were liable to contract the rot when allowed to graze on low-lying, wet, or ill-drained lands, and especially on ground subject to floods.

So much was clearly proved. In addition, it was believed by men of science, from what was known of the animals most nearly related to the liver-fluke, that there were larval forms inhabiting some snail or slug, and that the larvæ were subsequently taken up by the sheep when grazing. Some had suggested water-snails, others land-snails, or slugs, and numerous attempts to solve the question had been made by various eminent zoologists; but all had proved fruitless, and, notwithstanding its great practical importance, the problem remained unsolved.

Now, however, the mystery has been cleared up, and I will proceed to explain it in order, step by step, so that I may afterwards show how and where preventive measures are to be applied.

## Part II.—The Life-History of the Liver-Fluke.

Before giving the life-history of the liver-fluke, it will be well for me to explain a wonderful peculiarity in the manner of the multiplication and spread of the animals belonging to the group of flat worms of which the liver-fluke is a member. The fully grown adults live as parasites in some kind or other of backboned animal, such as a sheep, and there multiply by producing eggs. Each of the eggs gives rise to an animal, which is never like its parent, never does become like it, and never lives where its parent lives. It enters some snail or slug, and there grows and multiplies, not in the common way by producing eggs, but by giving rise to germs within itself. Calling the animal which is hatched out of the egg the first generation, these germs will form the second. There may be a third and a fourth, or even more generations in the snails, all these arising in the same way as germs; but at length a form arises which is destined to leave the snail in some way or other, to be swallowed by the backboned animal with its food, then grow much in size, become adult, and reproduce itself by eggs.

The snail or slug which harbours the first, second, and following generations is called the intermediate host, the back-boned animal being the ultimate or final host, and there is thus a constant alternation of one generation living its adult life in the back-boned animal, and one or more generations in the snail or slug. This is an example of what naturalists call an *alternation of generations*.

In the case of the liver-fluke there are at least two generations which live the whole of their adult lives in the particular snail which has now been clearly proved to serve as the intermediate host of the fluke. The third generation arises as a germ in the snail, and whilst still a minute larva passes in the manner explained below into the sheep. That is to say, supposing we start with the fluke as it is found in the sheep, its child does not grow up into an animal like the parent, nor does the grandchild do so. Both child and grandchild look very different from the true liver-fluke, and live in the snail; but the great-grandchild, forming the third generation, does, as a rule, grow up into a true liver-fluke and live in the sheep.

Wonderful as this may seem to any one who has not studied the marvels of animal life, the fact of alternate generation has been established beyond all doubt, not merely for the liver-fluke, but also for numerous other forms of life, which, however, do not at present concern us.

*The eggs of the liver-fluke.*—The adult fluke, whilst living in the bile-ducts of the sheep or other rotten animal, produces vast numbers of eggs. The bile-ducts (popularly known as the *pipes*) become large, and their walls thick, owing to the presence of the parasites. The bile contains numbers of eggs too small to be separately recognised by the naked eye, but which are nevertheless present in such quantities that they give it a dark colour. In some of the small ducts where the eggs have not been washed away by the bile, they may be present in such enormous numbers as to form a stiff dark-brown mass, looking like fine wet sand, and completely blocking up the inside of the duct.

The eggs are very minute indeed, being only $\frac{1}{200}$th of an inch in length; but they may be rendered visible to the naked eye by placing some of the dark-brown contents of the bile-ducts into a glass-vessel with water and shaking it up. On now holding the vessel up to the light, the tiny eggs will be seen as brownish specks suspended in the water. If they are very numerous, they will colour the water a light brown, or may even give it a dark coffee-colour. They are a little heavier than water, so that if the vessel is allowed to stand for an hour or two all the eggs will fall to the bottom, and leave the water colourless.

The number of eggs produced by each fluke is very large, and its fertility has been underrated. In one case I obtained 7,000,000 eggs from the gall-bladder of a single sheep suffering from the rot, and as the liver contained about 200 flukes, this gives an average of 37,000 eggs to each fluke. And these eggs were found in the gall-bladder alone; the

liver must have contained at least as many more, and eggs had been passed copiously by the sheep for many months. The number of eggs produced by a single fluke may be safely estimated at half a million, a number more easily spoken of than realised.

It is very important that we should know more about the egg, for it forms the starting point of new generations. But to know more about the egg, it is necessary to see it highly magnified by means of the microscope. Fig. 1 shows an egg thus seen. It is an oval body, with a transparent shell, which allows the contents to be distinguished. One end is a little rounder and blunter than the other, and shows a line marking off a rounded portion which forms a lid to the rest of the shell. A little below the lid is a small round mass, which is the present condition of the first generation or animal which will ultimately be developed from the egg. The remaining contents of the egg are simply a store of food for the benefit of this animal.

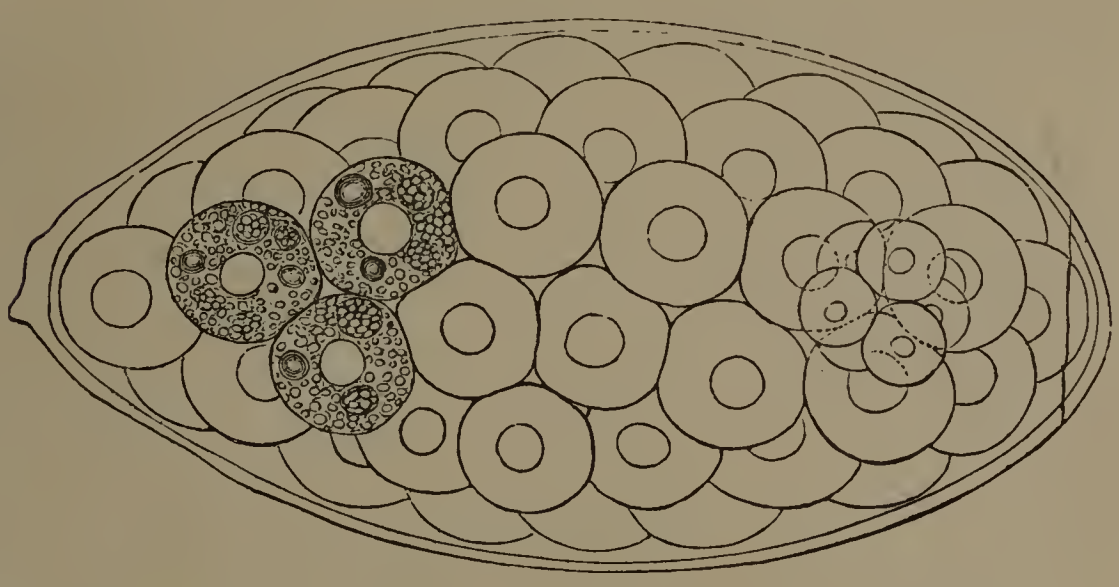

Fig. 1.—Egg of the liver-fluke examined shortly after it was taken from the liver of a sheep. At the right-hand end of the shell may be seen the line marking off the lid; and a little to the left, the embryo in a very early stage of development. The embryo is surrounded by round masses, which serve as food; they are all of them granular, but only three at the left-hand side have been fully drawn. Magnified 680 times. (Original.—A. P. T.)

So long as the egg remains within the body of the sheep no further change takes place.

Under natural conditions, however, the eggs of the fluke are washed away by the bile into the intestine, and, passing through the intestine uninjured, are at length distributed wherever the droppings of the infected animals fall. If they fall on to wet or marshy ground, or are washed by rain into

ditches, ponds, or brooks, further changes occur, and in each egg is formed the first generation or animal, which we may term the *embryo*, so long as it is in the young condition.

Not only moisture, but also a certain degree of warmth is required for the growth of the embryo within the egg. A temperature of about 74° to 78° Fahr. is the most favourable, and then the embryo is formed in about two or three weeks; with less warmth, progress is slower, and with an average temperature of 60° the growth occupies two or three months. Whilst the temperature is very much below this as in winter time, the egg does not change at all. It will be seen, therefore, that the embryo will not hatch out in the winter time, and that eggs which fall into suitable places at this season will only be hatched out as the warm weather comes on at the end of spring or beginning of summer.

But all eggs do not hatch out in the same time; a certain number are hatched out on every successive day for some weeks or even months, and at the end of this time some of the eggs may remain in the same condition as when just taken from the liver. No explanation can be found in the eggs themselves of the very variable time required for the growth of the embryo, but the fact is of much practical importance, for *eggs scattered over any damp ground may render it dangerous for a long period.*

Fig. 2 shows a fluke-egg at the time when the embryo is fully formed within the shell, and is ready to hatch out. The embryo lies curved on itself at one side of the egg, and on the other side are the remains of the food with which it was originally provided. The head-end of the embryo is directed towards the end of the egg which has the lid; and between the embryo and the lid is a cushion, or pad of stiff jelly-like substance. It will be seen that the suface of the body is covered with what look like hairs (still more plainly seen in the free embryo, Fig. 3). They are not really hairs, but can be moved; they are known as cilia, and it is by their means that the embryo swims, for they act as so many paddles in propelling it through the water.

Let us watch the embryo as it hatches out. It moves within the egg, the movements becoming more marked, until at last, the body being stretched out suddenly to its full length, so much pressure is brought to bear against the lid that it flies open as if moved by a spring. The cushion of jelly-like substance pours out, the embryo thrusts the fore-part of its body out of the shell, the cilia (or paddles) begin to move as soon as the water touches them, and the animal, after a short struggle, succeeds in drawing the whole of its

body through the narrow opening of the shell, and glides away with ease and rapidity through the water.

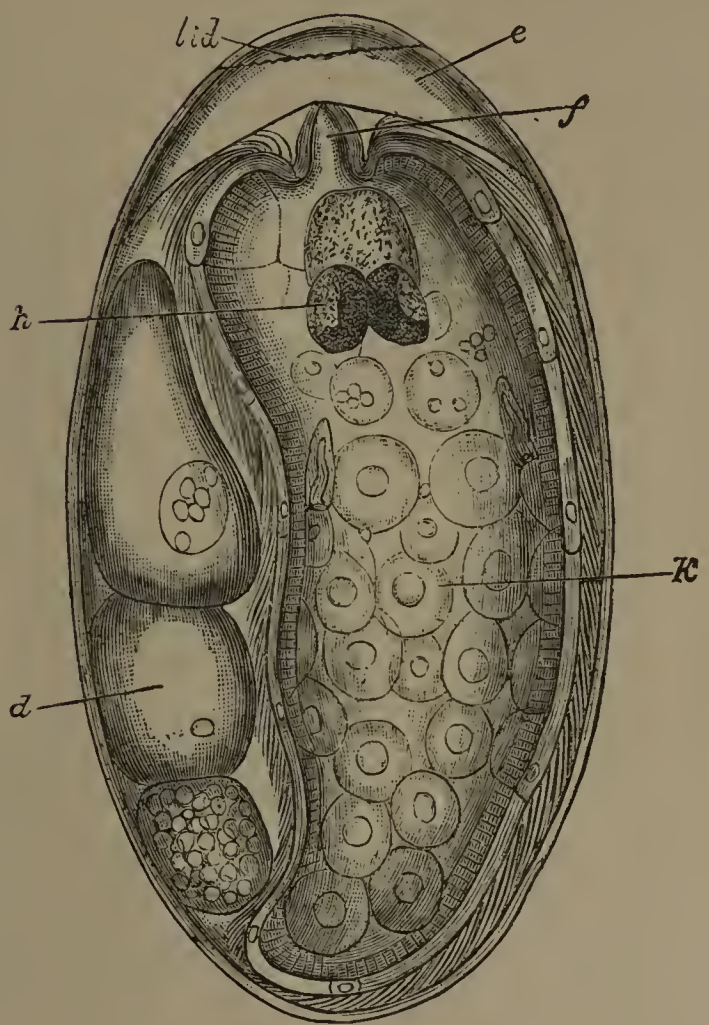


FIG. 2.—Egg of the fluke containing an embryo ready to hatch out: *d*, remains of food; *e*, a cushion of jelly-like substance; *f*, boring-tool of the embryo; *h*, eye-spots; *k*, germinal cells. Magnified 680 times. (Original.—A. P. T.)

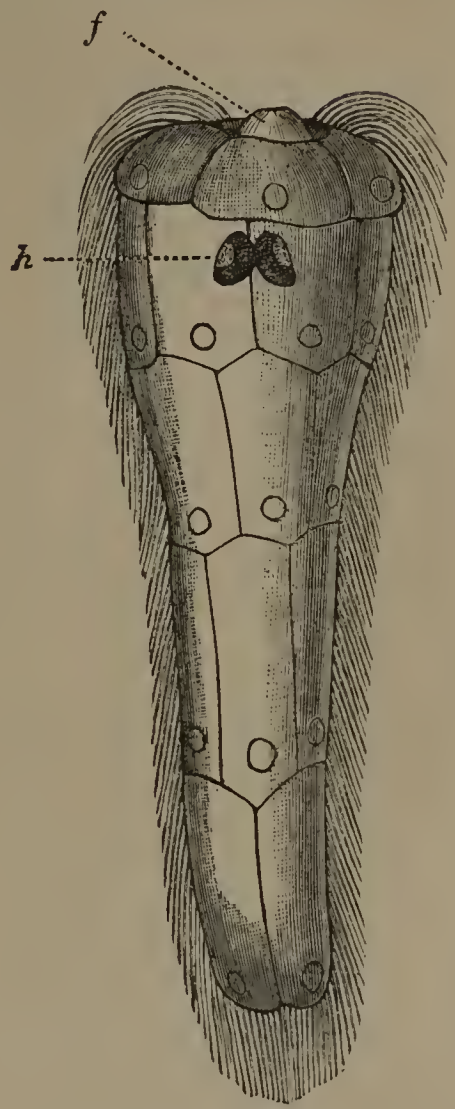


FIG. 3.—An embryo as it appears when swimming in the water; *f*, boring-tool; *h*, eye-spots. Magnified 500 times. (Original.—A. P. T.)

Fig. 3 shows the embryo as it appears when swimming freely through the water. This figure is of course very highly magnified; its real size is so minute that it can only just be detected by the naked eye, even under the most favourable circumstances. It has a conical shape—that is to say, it is not unlike a sugar-loaf in form—and it is about $\frac{1}{200}$ of an inch in length. The broader end is always directed forwards, and in its centre is a short peg-like projection, which is used as a boring-tool, and can either be drawn in or thrust out. The whole surface of the animal, with the exception of the projection just mentioned, is covered with the long hair-like paddles or cilia, by means of which it swims, with the boring-tool drawn in, swiftly and restlessly

through the water. It is exceedingly interesting to watch it speeding through the water; it is wonderfully active; sometimes it goes rapidly forwards, revolving upon itself like a top, just twisting a little from side to side, as if searching for something. At other times, by curving its body, it sweeps round in circles, or, curving itself yet more, spins round and round the same spot, without moving from it.

Towards the front end of the embryo are two black marks (Fig. 3, *h*); they have the shape of two half-moons placed back to back. These are very simple eyes, and though they cannot give the embryo the power of seeing very distinctly, yet they render it very sensitive to light, and are no doubt of very much help to it in searching for its new home.

When the embryo, in moving through the water, comes in contact with any object, it pauses for a moment, and feels about, as if trying to discover its nature; and if not satisfied, it darts off hastily again. But if the object be the particular kind of water-snail known as *Linnæus truncatulus*, it at once tries to bore into it. This snail is a very common one; but it is so small that it usually escapes notice, and hence it has no common or popular name. More will be said about it further on. Under ordinary circumstances, the boring-tool in the head of the embryo (*f*, Fig. 3) is short and blunt, but as soon as the animal begins to bore, it becomes longer and more pointed. The embryo spins round and round on itself, just as the handle of a gimlet is turned, the hair-like paddles working vigorously, and pressing the little embryo against the surface of the snail. The pressure is increased by the body of the embryo being alternately drawn together and then suddenly stretched out. As the boring-tool sinks further into the substance of the snail it becomes longer and longer, until at length it reaches five times its original length (see Fig. 4), and the substance of the snail is forced apart as if by a

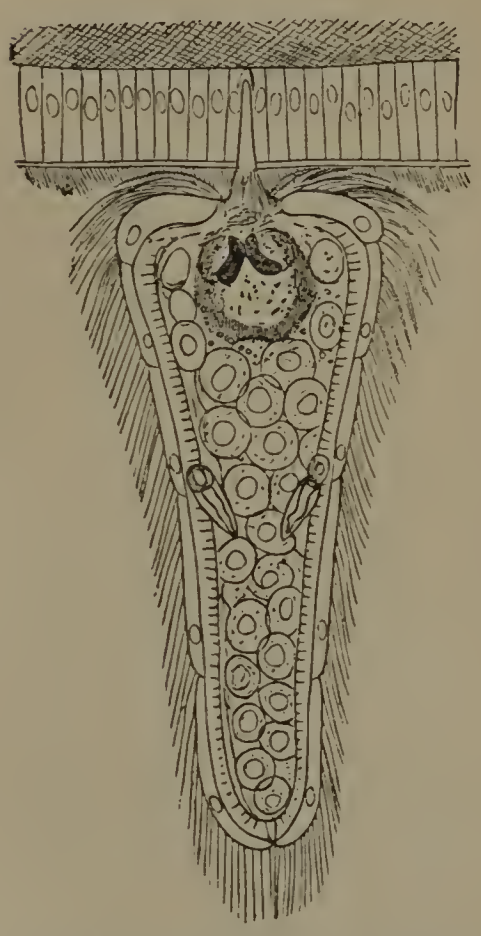

FIG. 4.—Embryo of liver-fluke boring into a snail. Only a very small part of the snail has been drawn. Magnified 370 times. (Original.—A. P. T.)

wedge; and a gap is thus made through which the embryo squeezes its way into the snail.

Fig. 4 shows the embryo whilst in the act of boring into a snail; only a very small portion of the snail's body has been drawn.

It may be interesting for me to state briefly how the further development of the embryo within the snail was traced. Very large quantities of eggs were collected from the livers of rotten sheep, and hatched out in water. The embryos were then transferred to vessels of water containing many different kinds of snails, and their behaviour watched. When it was discovered that the embryos bored into the particular kind of snail called *Limnæus truncatulus*, large numbers of this kind were got. Embryos of the liver fluke were allowed to bore their way into them, and then they were dissected at definite intervals—some three, six, or twelve hours later, others on each successive day, until the whole history was traced. In this way the changes passed through by the animals found in the snail could be followed step by step, and the relation of the different generations proved beyond any possibility of doubt.

The embryo of the liver-fluke will not bore into all snails alike; the only other kind of snail into which I have found it enter at all is the one called *Limnæus pereger*. But it is only into the very youngest and smallest snails of this kind that the embryo will force its way, and even these do not afford a suitable place for its further growth, for every embryo that succeeds in entering perishes at an early stage.

The embry seems to know by instinct the right kind of snail. Thus I have placed large numbers of freshly-hatched embryos in a small vessel of water containing *Limnæus truncatulus* and several other kinds of fresh-water snails; and on subsequently examining them all, have found the specimens of *Limnæus truncatulus* to contain as many as fifty or more fluke-embryos each, whilst the other kinds of snails were entirely free from them.

(*To be continued.*)

# ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

Monthly Council, Wednesday, July 4th, 1883. Present—His Grace the Duke of Richmond and Gordon, K.G., President (in the chair).

## *Veterinary Committee.*

*Colonel Kingscote* reported that they had had before them the documents connected with the exhibition of live stock at York, and forms of certificate to be supplied for animals exhibited. In addition to the Local Authorities previously reported, those of Cumberland, Leicestershire, Somersetshire, Warwickshire, and Stalybridge, had agreed to accept the certificate of the Society.

*Mr. H. J. Little* asked permission to call the attention of the Council to a rather remarkable and exceedingly virulent outbreak of foot-and-mouth disease which had recently occurred on his farm, and which might confirm the council, perhaps, in urging upon the Government the necessity of closing the ports of the Kingdom to animals from infected countries; because in his case it seemed almost impossible to foresee that foot-and-mouth disease would be introduced into his farm in the way it was. On the 24th May, his farm being full of stock at the time, he sent the whole of his sheep to a wash-pit in the neighbourhood, not having a washing place on his farm. On returning from the wash-pit they were scattered about the farm, and in three or four days it became clear that they had contracted foot-and-mouth disease. After a few days more the cattle were attacked. He had at the time fifty head of breeding cows, about twenty of which were valuable Shorthorns in-milk, the milk being sent to London, but the whole of the calves from them were being reared in the yards. The remaining thirty were Galloways crossed with a Shorthorn bull, and no part of farming had given him greater pleasure than breeding of this description. There was no doubt that the disease was contracted on the 24th May, and on the 1st June, exactly one week later, one of the cattle was brought to him with a suspicious case of foot-and-mouth disease. He therefore called in a veterinary surgeon, who, after an examination, only suspected that disease, but said there was no doubt that the sheep had got it. On the 8th June one of the half-bred Galloway calves lay dead in the field. He was absent at the time, but the bailiff, with great prompitude, separated the calves from the heifers, and tried to give the calves boiled whole milk from cows not affected with the disease. This, however, was found to be impossible; the calves were very strong, and could not be got to take the boiled milk, but preferred water. They were shut off from their mothers for about a week, and at

the end of that time two died. A veterinary examination was made, and a certificate given by the surgeon that they died from foot-and-mouth disease. He (Mr. Little) then wrote to the Principal of the Royal Veterinary College, Professor Robertson, who went down himself. He pointed out that if the animal had died from foot-and-mouth disease it would be plainly indicated by the state of the fourth stomach, and this proved to be the case. He suggested various remedies, one of them being salicylic acid; and in reply to a question whether there was any chance of preventing the spread of the disease to the other animals, he said he hoped there was, but did not seem to be very confident. One of the features of this outbreak of the disease was that the animals did not always exhibit it externally, and therefore detection was very difficult. The whole of his milking cows were affected, and his supply of milk to London was entirely stopped. In one case a cow seemed to be just getting over the disease, was able to eat, take porridge and so on; but one evening it was found lying dead. She was examined in the same way as the calves, and all her internal organs seemed perfectly healthy, with the exception of the fourth stomach, which showed that the animal died from foot-and-mouth disease. Up to the present time he had lost thirteen calves, one cow and thirty pigs. None of the sheep had died, although the disease passed through the whole of the flock, and the falling off in condition was very great. It might be said in this case that the local authorities were in fault; certainly he could not blame himself, because he took extra precautions about his stock. He had since found that a small farmer in the neighbourhood, whose cows were affected at the time, but who had not then declared the affection to the authorities, had sent his sheep to the same wash-pit the day before his own (Mr. Little's) were sent. His brother's sheep went two days afterwards, and brought home the disease, but, fortunately, in a milder form. Then a friend who subsequently sent his sheep to the wash-pit escaped contracting the disease at all.

In reply to the President, *Mr. Little* added that the sheep belonging to the neighbouring farmer took the disease from the cows. Foot-and-mouth disease had been in the neighbourhood during the whole of the spring, one farm after another having been declared infected, but at the time to which he had referred he was of opinion that the disease had been stamped out. His argument that the outbreak he had described furnished an additional reason for urging upon the Government the prohibition of animals from infected countries, was based on the fact that the prevalence of foot-and-mouth disease in this country at the present time was clearly traceable to foreign importations.

The *President.*—Quite so; that is admitted.

The *Earl of Ravensworth.*—Had the farm from which the disease was communicated to the wash-pit been at any time declared an infected place?

*Mr. Little.*—It was declared an infected place a day or two after the disease had been contracted by my sheep.

*Professor Brown* stated that before the Veterinary Department of the Privy Council heard of the outbreak on Mr. Little's farm they sent Mr. Duguid down to Lincolnshire, in consequence of many outbreaks, and he had traced nearly every case to the washing-pits; and he wished to point out that a public washing-pit was one of the most dangerous places in existence for the spread of disease. As a general rule, also, wherever calves sucked the milk of diseased cows, or lambs the milk of diseased ewes, the disease was communicated; and calves had actually been killed, as rapidly as they could have been by prussic acid, by taking the milk of diseased cows and pouring it down their throats.

*Mr. Pain* expressed his opinion that if the Government would issue an order that full compensation should be given for diseased animals slaughtered, it would do more than anything else to stamp out the disease, as this would remove the temptation felt by many small farmers to conceal disease amongst their stock.

The Report of the Committee was then adopted.

*Education Committee.*

*Lord Moreton*, M.P. (Chairman), reported the recommendation of the Committee, that the Secretary be instructed to make the usual arrangements for the examination of candidates for the Society's Junior Scholarships in November. This report was adopted.

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## ROYAL VETERINARY COLLEGE.

### ANNUAL GENERAL MEETING, JULY, 1883.

The annual general meeting was held on the 5th inst. in the Board-room of the College under the presidency of His Royal Highness the Duke of Cambridge.

There were also present Lord Coventry, Lord Carrington, Lord Ribblesdale, Lord Arthur Somerset, Lord Norreys, Sir Thomas Bateson, Sir F. Fitzwygram, Sir Paul Hunter, Sir James Tyler, Colonel Kingscote, Mr. Newdegate, Mr. Harpley, Mr. Sutton, and Mr. Barnard Holt.

The Annual Report was received and ordered to be forwarded to each subscriber to the College.

Lord Egerton of Tatton, Lord Waterford, and Mr. Leigh, of Lyne, were elected Governors, and the proceedings terminated with a vote of thanks to His Royal Highness for presiding.

*Eighth Annual Report under the Royal Charter of Incorporation, ordered by the Governors of the College to be presented to the Subscribers.*

### General Government.

No alterations have been made during the past year in the Regulations relating to the Government of the College.

At the Annual General Meeting in July last, Lord Hothfield and Lord Ribblesdale were elected Governors, and a vacancy has since occurred in the List of Governors by the death of the late Major-General Burnaby, M.P.

There are at present ten Vice-Presidents and twenty-six Governors, the total number being limited by Charter to twelve of the former and thirty of the latter.

Mr. Berens has, for the second year, held the position of Chairman of the General Purposes Committee.

### The School.

The Governors are pleased to be again able to report an increase in the number of Students who have joined the College during the past twelve months in comparison with the last two or three years. Sixty-three Students have entered this year against sixty-one last year, and forty-seven the previous year.

The Council of the Royal College of Veterinary Surgeons have adopted a scheme by which a uniform scale of Examination for entry to all the Veterinary Schools will be enforced. This is to come into operation in January, 1884. As the educational standard has, no doubt, been higher at this College than at the Scotch Schools, this action on the part of the Royal College of Veterinary Surgeons should tend to still further increase the number of entrants to this College in the future.

No changes have taken place in the Teaching Staff since July last, and the general attendance and behaviour of the Students has been fairly good. The restrictive Preliminary Examination held by the teachers, prior to the examinations by the Board of Examiners of the Royal College of Veterinary Surgeons, has during the last year been dispensed with; the Teachers, however, seem generally of opinion that it will be wise to revert to the old system.

The number of animals brought for treatment to the "Cheap Practice" continues steadily to increase. During the twelve months ending June 30th, 1881, 576 original cases were brought for advice or treatment; from June 30th, 1881, to June 30th, 1882, 767 cases; and from June 30th, 1882, to June 30th, 1883, 990. Several of the animals have made repeated visits to the College, consequently the amount of practical instruction afforded the Students has been very considerable.

During the past year thirty-three Students have presented themselves for the examination for the Diploma of the Royal College of Veterinary Surgeons, twenty-six of whom have passed.

In the preceding twelve months forty-seven Students were examined, of whom forty-one passed.

### Infirmary and Subscribers.

The average number of horses daily in the Infirmary during the year has been 51 against 60 the year before; the number in 1881 being 62, in 1880, 80, and in 1879, 87.

The individual number of cases admitted into the Infirmary for treatment has been 768 against 806 for the twelve months ending June 30th, 1882, the numbers for 1881 and 1880 being 864 and 877 respectively.

The average number of dogs has been 6 against 6 last year.

The number of horses examined for soundness has been 1048, the numbers to June 30th, 1879, 1880, 1881, and 1882 being 1447, 1363, 1198, and 1045 respectively. The number of consultations and of animals treated as out-patients appears from the record to have been 1658 as against 919 in 1882 and 934 in 1881. In 1879 the number was 1202.

The number of new Subscribers enrolled during the year has been 196, and 205 names have from death and other causes been removed from the list. There are at present 85 Life Subscribers and 967 Annual.

### Buildings.

No new Buildings have been erected during the past year. Only the usual and necessary repairs have been undertaken.

### Finance.

The Governors are pleased to be able to report an improvement under this head. Last year it will be remembered the Annual Expenditure exceeded the Income by £510 1s. 4d., while this year the Income is in excess of Expenditure by £262 11s. 8d. Although the Income arising from the Stable Department is smaller than it was last year, being £3885 against £4098, nevertheless the Profit under this head amounts to £580 against £282 last year, the Expenditure having fallen from £3816 to £3305. This may in a large measure be attributed to the decrease in the price of hay and straw, the price at present paid being £4 18s. per load for hay, and £2 2s. per load for straw; the prices being £6 10s. and £2 14s. respectively at this time last year.

The amount received for subscriptions also shows an improvement, being £2239 13s. against £1974, while the receipts from Pupils' Fees remain practically stationary, being £2291 2s. against £2297 8s.

A Committee has been sitting during the last year with a view of reducing the Annual Expenditure, and their recommendations have been adopted by the Governors. It is hoped that a saving of nearly £500 per annum will be effected, which in view of the falling in of the present lease in 1889 is urgently needed. Any negotiations for a renewal of the lease will undoubtedly have to be undertaken upon the basis of a very considerable increase of rent.

On the whole the prospect is certainly more encouraging than it appeared last year, and the Governors are sanguine that the profits arising from the Infirmary will at no distant date show a very considerable increase, while the Receipts from Pupils' Fees and Subscriptions will at any rate be fully maintained.

### Royal Agricultural Society.

A considerable number of investigations of outbreaks of disease have been made by officers of the College during the past year on behalf of the members of the Society; also several consultations have taken place, both personal and by letter. Owing, however, to the Society having appointed local veterinary surgeons in different district to act as Inspectors, the number of investigations and consultations has not been quite so large as in former years.

During the year investigations into the disease known as "Foot-and-Mouth" have been carried out by Professor Robertson, and the results have been communicated by him from time to time to the Society.

A special investigation, by request of the Lincolnshire Agricultural Society, is also being made by Professor Axe relative to the causes operating in the production of a somewhat serious development of abortion among ewe s.

### Scholarship and Coleman Prizes.

The Principal and Professors recommend that the Scholarship be awarded to Mr. A. Cawdle, also that the Coleman Silver Medal be awarded to Mr. Layton J. Blenkinsop, the Bronze Medal to Mr. John Morton, and Certificate of Merit to Mr. E. H. Hazelton, and to Mr. W. H. Bloye.

C. N. Newdegate, *Chairman.*

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## ROYAL COLLEGE OF VETERINARY SURGEONS.

### QUARTERLY MEETING OF COUNCIL HELD JULY 4th, 1883.

The President, G. Fleming, Esq., LL.D., in the Chair.

*Present.*—General Sir. F. Fitzwygram; Professors Pritchard, Robertson, Simonds, Walley; Messrs. Blakeway, Cartledge, Cartwright, Cox, Dray, Fleming, Greaves, Harpley, Simcocks, Santy, Simpson, Walters, Woods, Wragg, and the Secretary.

The *Secretary* read the notice convening the meeting.

The minutes of the last meeting were read and confirmed.

The *Secretary* stated that telegrams had been received from Messrs. Reynolds and Taylor, regretting their inability to attend the meeting.

### *Presentations to the Library.*

The *Secretary* announced that presentations had been made by the Pharmaceutical Society, the Editors of the Quarterly Journal

of Veterinary Science in India, Professor Brown, Dr. Geo. Fleming, and Mr. J. Sampson Gamgee. The thanks of the Council were accorded to the several donors.

### *The Fleming Testimonial.*

*Mr. Greaves* said he had in the name of the veterinary profession to present to the Council the full-length portrait of Dr. Fleming. He would ask them to accept it and to guard it with jealous care, so that it might be long looked upon with affectionate remembrance as embodying the ideal of an earnest, honest, and indomitable character, whose whole life had been consecrated to the advancement and elevation of their profession. He could enumerate a long list of literary works, the result of untiring mental labour and activity, but he would refrain from doing so because Dr. Fleming was present. He was one of them, and they were all acquainted with his almost superhuman efforts to raise and benefit the profession. They esteemed him highly, and would cherish his memory as long as life should last. He also begged to congratulate Dr. Fleming on his having attained the highest position of honour and dignity that the Sovereign could bestow upon a veterinary surgeon, namely, the office of Principal Veterinary Surgeon to the army. (Applause.)

The *President* said, while thanking the profession for the very high appreciation they had shown of his labours and intentions to improve the profession, he hoped the Royal College would accept the presentation as a recognition on their part of the efforts of those who had worked for their improvement and the advancement of their science.

*Professor Walley* said he should be happy to move that the Council should gladly accept the present made to them by the profession.

*Professor Robertson* seconded the motion, which was agreed to.

The *Secretary* read letters from several gentlemen acknowledging the honour of their election as members of the Council.

### *The International Veterinary Congress.*

The *Secretary* read a letter from Dr. Wehenkel, Secretary of the Congress, asking that the Royal College might be represented at the Veterinary Congress in Belgium in September.

On the motion of *Professor Robertson*, seconded by *Mr. Dray*, the President was asked if he would kindly undertake the journey to represent the Royal College of Veterinary Surgeons at the International Veterinary Congress.

The *President* consented.

### *Examination Reports.*

The reports of the Examinations of new members of the profession and the Fellowship Degree were read.

*Finance.*

The report of the Finance Committee was read, and also the Treasurer's Balance Sheet.

*Mr. Cartledge* moved, "That the financial statement be received and adopted."

*Professor Walley* seconded the motion, which was agreed to.

Cheques were ordered to be drawn to meet the expenses.

*Appointment of Committees.*

The following were appointed members:

*Parliamentary Committee.*—The President; Professors Brown, Robertson, Pritchard, Simonds; Messrs. Cartledge, Collins, Greaves, Harpley, General Sir F. Fitzwygram, Messrs. Walters, Simcocks, and Simpson.

*Museum Committee.*—The President, Professors Pritchard and Axe, and Mr. Dray.

*Finance Committee.*—Professor Simonds; Messrs. Cartwright, Cox, Dray, Greaves, Harpley, Taylor, Walters, and Wragg.

*House Committee.*—The President; Professors Pritchard and Robertson; Messrs. Batt, Cox, Greaves, Harpley, Simpson, Walters, and Wragg.

*Registration Committee.*—The President; Professors Pritchard, Robertson, Simonds; Messrs. Batt, Cartwright, Collins, Dray, Greaves, Walters, and Wragg.

*Library Committee.*—Professors Axe and Robertson; Messrs. Blakeway and Harpley.

*Examination Committee.*—The President; General Sir F. Fitzwygram; Professors Pritchard and Simonds; Messrs. Collins, Harpley and Woods, and the Principals of the different schools.

*Bye-laws.*—The President; General Sir Frederick Fitzwygram; Professors Pritchard, Robertson, Simonds and Walley; Messrs. Cartledge, Cox, Greaves, Harpley, Simpson and Wragg.

The obituary list was read.

*Honorarium to the Secretary.*

The Secretary having retired,

*Mr. Dray* said he had introduced this proposal at the Special Meeting held at the Freemasons' Tavern, but in accordance with the ruling of the President it was postponed to the Quarterly Meeting. The duties of the Secretary had enormously increased. The amount of time that Mr. Hill had devoted by day and night to carry out the wishes of the Council was unprecedented, and ought to be rewarded. He would venture to assert that no staff of Government clerks could have carried out the work so effectually as Mr. Hill had done. He had had to give audience to persons calling to see him at most unreasonable hours, and for the purpose of asking the most trying questions, more especially in connection with the V. S. Act, and in consequence of the in-

terruptions to which he had thus been subjected he had to perform his duties under great difficulties. Another circumstance had lately occurred, namely, that the District Surveyor is of opinion that the whole of the College building is in a dangerous state, and said it was doubtful if Mr. Hill could with safety remain with his family. He hoped that under these circumstances the Council would grant Mr. Hill a bonus of £50 in order to encourage him in his future efforts.

*Mr. Santy* seconded the proposition.

*Mr. Cartledge* said he had very great pleasure in supporting it. Mr. Hill did his work with great satisfaction to the Council.

The *President* said he could heartily endorse everything that had been said. Mr. Hill's work had, of course, come largely under his observation, and he could testify to the immense service he had rendered to the profession, not only in his ordinary routine work, but with regard to the extra work which had been imposed upon him by certain circumstances that had taken place during the last two years. Mr. Hill had had an immense amount of labour and responsibility thrown upon his shoulders, and he was quite sure the small honorarium proposed to be given to him would be appreciated.

The resolution was then unanimously agreed to.

The *Secretary* having returned,

The *President* said it was his pleasure to inform him that the Council had voted him a small bonus of £50 in recognition of the services he had rendered to the profession for some time, and especially during the last three years. In doing so he was sure that he (Mr. Hill) would not so much estimate the money value as the fact that it was a recognition which the Council was pleased to afford him of the admirable way in which he had performed his duties.

*Mr. Hill*, in acknowledging with sincere thanks the kind present they had made him, said he further wished to express his thanks to those gentlemen forming the various committees, who had never failed to render him every assistance; and whenever he had asked them to attend any meetings they had always readily given their attention to any matters he had brought before them.

### *Mr. Field's Bequest.*

The *President* said the Council were aware that Mr. Field had made a bequest to the profession of £1000, on the condition that another £1000 should be raised within twelve months. He felt perfectly assured that this bequest would not be lost by the profession, and it now remained for the Council to say what steps should be taken. The first contribution had been made by the Central Veterinary Medical Society of £52 10s.

*Mr. Greaves* suggested that the whole profession should be canvassed, a circular being sent to every member. He, for one would subscribe twenty pounds, and hoped that other members of the Council would follow his example.

*Mr. Simpson* supported the proposal to canvass the profession. He said it was not merely a question of getting a thousand pounds, but of raising the feelings of the whole profession, and getting together a considerable sum, and then they would stand in a very much better position with regard to Government aid. He agreed that the Council would study its own dignity and the interests of the profession by making a good start in the matter, and he would promise twenty pounds.

The *President* said he would gladly give twenty-five guineas.

*Professor Simonds* suggested the formation of a Committee.

*General Sir F. Fitzwygram* said it should be clearly expressed in the appeal which they put forward, that although Mr. Field's generous gift was the cause of the appeal being made at this present time, still it was generally directed to the major object of raising a sufficient sum for the building of a new college, and it should be headed "Building Fund."

A Committee for the purpose was then formed, comprising General Sir Frederick Fitzwygram, Dr. Fleming, Professors Pritchard and Simonds, Messrs. Cartwright, Cox, Dray, Greaves, Simcocks, Simpson, Wragg, the Presidents of the Veterinary Medical Societies, and the Principals of all the schools.

The House Committee were directed to inspect the various sites and buildings which might come under their notice, and to report at the next meeting of Council which, in their opinion, was the most eligible.

## SPECIAL MEETING.

*Professor Walley*, in bringing forward the motion of which he had given notice, said,—Some time ago motions were brought forward in the Council with reference to this particular subject, but in a different form. The form which it then took was that the oral should precede the practical examination, and that any student passing in the oral should not again be re-examined in the subjects of that particular examination. The motion was again brought forward in the form of a recommendation from the Education Committee that the practical examination should precede the oral, and the Council chose to rescind what had been proposed on the occasion of the last motion. The question was brought up a second time, with the result that it was lost by two votes. Since that time he had talked the matter over with a number of gentlemen, and amongst them some who previously opposed it, and they saw the reasonableness of the proposition he then made. He put it in this way. A student presents himself for examination in April, passes the practical, but is rejected in the oral. He presents himself in the following July, and the matter is reversed; he passes in the oral and is rejected in the practical. He comes up again in the following January and the matter is again reversed. Now, assuming that he came up again, as he would have to do, he might again pass in the oral and be

rejected in the practical. He thought it very hard upon students that they could not make some provision for men under circumstances of that nature, and therefore proposed to meet the matter by the motions he had placed upon the notice paper; or if it would better meet the wishes of the Council they could make it if they liked a majority—assuming that he passed three out of five subjects, that those subjects should be remitted to him. The other principals of the Scotch schools were quite at one with him in this matter.

*Mr. Greaves* seconded the motion.

*Mr. Cox* said with regard to the practical examination, some members of the profession felt that there was great necessity for the students having the opportunity of acquiring more knowledge than they could obtain at the College. The College could not do impossibilities, and therefore many thought that it was best for the student that a pupilage should be imposed upon him. All parties, however, were agreed in placing the entire onus upon the Examiners, who should determine the standard of fitness for passing. The result was that the Examiners must either make the standard of passing fit in with the limited attainments of the students in practical subjects, or they must be authorised to apply the requisite stringency to obtain proof of present fitness and capability on the part of the student. Under those circumstances they must ask for instructions as to how they should carry out the examinations; and he would suggest as an addition to the motion the following words: that "if the student passes in any of the subjects in the final examination, he shall not again be examined on the subject in which he has passed." At the same time he should not be relieved from examination in any subjects unless he had passed those subjects with credit.

*Professor Walley* said he would accept Mr. Cox's addition to the motion.

*Professor Brown* said he gathered from what Mr. Cox said that the practical examinations were in a very uncomfortable condition, and he did not wonder that the examiners asked for instructions from the Council as to how they were to proceed. The case seemed to be this. It was admitted that the Colleges could not afford a man sufficient instruction to make him a competent veterinary surgeon; and seeing that, owing to the action of the Scotch schools, the pupilage system could not be established, under those circumstances the student in every examination was submitted to a series of tests which must vary according to the amiability of his examiners. The whole subject was far too important to be dealt with at a special meeting at the fag end of a Council meeting, and if what Mr. Cox had stated was correct, something far more radical than simply passing a motion having reference to a final examination, leaving all the others untouched, certainly ought to be carried out by the Council.

*Mr. Simcocks* said Professor Walley had conclusively proved that his motion would be a step backwards. Mr. Cox's speech

was a strong indictment of the veterinary schools, but a still stronger indictment of the Examiners. The duty of the Examiners was to ascertain that the candidates for the diploma possessed sufficient knowledge to become efficient practitioners, and whatever opportunities they might or might not have should not weigh with the Examiners in granting a diploma. The diploma was supposed to be a certificate of fitness of the person possessing it, and yet they heard a confession from an Examiner that, so far from looking at it in that light, they merely examined a man, and took into consideration what chance he had had of acquiring knowledge. The practical examination had been in force for twelve years, and he really thought if the schools had not managed in some way to afford the students practical instruction, the Examiners had no right, on that ground, to pass men who were deficient in practical knowledge. He hoped that the whole subject would be remitted to a fuller meeting.

*General Sir F. Fitzwygram* opposed the motion because it would lead to "cramming." He was, however, prepared to concede that if a student passed his oral examination in the final, and was plucked in his practical, he need not be re-examined in the oral.

*Mr. Harpley* also opposed the motion. He thought it became so serious a matter when they had heard that the practical instruction of the students at the various colleges was not equal to the requirements of the examiners, that the whole subject ought to be referred back to a further meeting of the Council.

The *President* said he looked upon the motion as one of a retrograde character. If any one thing more than another was needed to enhance the value of their profession it was an improved examination, and to allow a man to pass such an examination piece-meal was a backward step. As the examinations now stood they were as good as they could expect to have them under the circumstances, but if any movement at all was to take place it should be towards increased stringency. Altogether, the motion, if carried into effect, would be most pernicious in its results, and he should be very glad if Professor Walley would withdraw it.

*Professor Walley* said that after the discussion which had taken place he would, with the permission of his seconder, withdraw the motion.

The motion was then withdrawn.

The proceedings then terminated with a hearty vote of thanks to the chairman.

At the close of the sitting of the Council, Mr. Greaves, on behalf of the veterinary profession, presented the President with an Illuminated Address on vellum, containing a list of the names of the subscribers to the testimonial, 320 in number.

The address was as follows:

"To GEORGE FLEMING, Esq., F.R.C.V.S., LL.D., &c.,

"As an expression of gratitude for distinguished services to the Veterinary Profession, more especially in his contributions to Veterinary and Medical Literature, in obtaining the Veterinary Surgeons Act of Parliament, 1881; also in holding the important office of President of the Royal College of Veterinary Surgeons for Four consecutive Years.

"A Testimonial, subscribed for by the following members, and consisting of two Portraits (one for himself, the other for the Royal College), Silver Plate of the value of Two hundred Guineas, and a Diamond Ring for Mrs. Fleming, was presented to him at the Annual Meeting of the Royal College of Veterinary Surgeons, 1883.

"A substantial Testimonial was also presented to him by the Veterinary Profession in 1879."

The *President* having briefly acknowledged the gift,

*Mr. Santy* proposed a special vote of thanks to the Hon. Sec. and Treasurer of the Committee, and also to the Committee generally.

*Professor Robertson* seconded the resolution, which was carried by acclamation.

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## LIVERPOOL VETERINARY MEDICAL ASSOCIATION.

The seventy-fifth quarterly meeting of this Association was held in the Medical Institute, Hope Street, Liverpool, on Friday, 11th May, 1883, Wm. Leather, Esq., Vice-President, in the chair.

There were present—Messrs. Morgan, Moore, Kitchen, Elam, Welsby, junr., A. Leather, Ross, Davey, and the Secretary, Liverpool; Messrs. W. A. Taylor, T. Taylor, Greaves, Locke, Hopkins, and Wolstenholme, Manchester; Messrs. Edwards and Storrar, Chester; Mr. Whittle, Worsley; Mr. Barron, Sutton; Mr. Stone, Little Houlton; Mr. Wilson, Nantwich; Mr. Pilkington, Woolton; Mr. Lloyd, Denbigh; Dr. Phillpot, and Mr. Jackson.

Letters of apology for non-attendance were received from Messrs. Reynolds, Welsby, T. Leather, Roberts, and Nuttal.

The minutes of the previous meeting were read and confirmed.

*Mr. Elam* proposed that Mr. Ross, Liverpool, be elected a member of this Association, seconded by *Mr. Moore*, and carried.

*Mr. Morgan* proposed that Mr. Barron, Sutton, be elected a member of this Association, seconded by *Mr. Edwards*, and carried.

The *Secretary* nominated Messrs. J. Sumner, H. Sumner, and Davey for election as members of this Association.

*Mr. T. Taylor* then directed the attention of the Association

to an advertisement in the *Veterinarian* relative to the circulation of a list of veterinary surgeons, former students of the Royal Veterinary College, Camden Town, London. Considerable discussion ensued, in which Messrs. Morgan, Elam, Greaves, and others took part, but the matter finally dropped.

*Mr. Moore* withdrew the subject he had given notice to introduce, viz. "Cheap or Dispensary Practice as conducted at the Royal Veterinary College, Camden Town, London.

*Mr. Kitchen* then read his paper on "Quittor" and "Poll Evil."

Mr. President and Gentlemen, in drawing your attention to the subject of "Poll Evil" to-night, I do so with the intention of trying to learn something respecting the disease especially from our older members, who doubtless had to battle with this complaint many years before most of us ever thought of entering the veterinary profession. I think, gentlemen, you will all agree with me that pole evil is one of the most, if not the most, troublesome disease that we as veterinary surgeons have to contend with, and seldom gives us credit for our pains and trouble. The name "poll evil" seems to have been handed down to us I might almost say for generations, and taking into consideration the nature and seat of the disease, I think it a very appropriate name indeed.

In a book published in the year 1734, called 'Markham's Master Piece," you find the same name, "poll evil," given to this disease. In this wonderful production of veterinary literature it is defined to be "a great swelling or inflammation in the nape of the neck, just between the horse's ears towards his mane," the treatment of which I will give in the editor's own words: "Take of unslacked lime and arsenic a like quantity, beat them together into a very fine powder, then add to them the juice of garlic, of onions, of walnuts—of each a like quantity, and of holly as much as all the rest; boil them over a soft fire, and filter them all together until they be as thick as an ointment. Then wash the sore with strong vinegar, and fill the hole full of the aforesaid ointment, by dipping a tent therein twice a day. Then lay a plaster of hog's grease upon the tent to make it keep in, and use this until the horse is whole." So much for 'Markham's Master Piece.'

Again, in 1769, in a book called 'The Perfect Knowledge of Horses,' we find it described to be "a troublesome distemper." I do not know much about the distemper they used to have in those days, but I quite concur with the word troublesome. Well, gentlemen, we have had five cases in our practice quite recently, and for this reason I was determined to call your attention to poll evil to night.

One (a roan mare) seemed to recover very nicely. She was sent home after being in our hospital about two months, and we have heard no more about her (this was the first case). Three out of

the other four happened at one farm house; the ages of the three horses being three, five, and seven years respectively. I happened to know the farm well, and have made every inquiry in trying to find out the cause, but cannot possibly get at anything definite. In the first place, the stable is an open one, no loft over it. In former times poll evil was caused in a great many instances by the stables being so very low—of course I mean the ceiling, but it is not so in the cases before us.

I cannot trace any brutality amongst the servants, the foreman over the horses having been there upwards of twenty years.

The horses are not used to tight bearing-reins; in fact, they are not used to bearing-reins at all. The owner of these horses has been farming for over forty years, and never before had a case of poll evil, but here, out of a stock of twelve working farm horses, we have three cases at one time.

The horses in question are tied up, two in one wide stall, as is the general rule in the farming districts where these animals are located. Certainly the upper part of the manger seems to and does project out a good deal, on the top of which runs a broad piece of wood, which again projects over the side of the manger; whether the horses suffering from poll evil have knocked their heads against this protuberance or not I do not know. In breaking these horses in, which they do at three years of age (not before), it is their usual custom to put on the breaking tackle at say 2 o'clock in the afternoon, before the men return to the field and to their work. Connected to the bit are side reins, which fasten to a buckle on the roller. By means of these side reins the horse's head is pulled pretty well in—the reins act simply as a bearing-rein. They are then turned loose in the farmyard until 6 o'clock, or such time as the men return home from the field. Whether or not during this time the horses knock their heads against anything in trying to get off the bridle, &c., I cannot say. In fact, gentlemen, I am at a loss to account for it. I have been asked over and over again by the owner, and have suggested all the above-mentioned probable causes, all of which have been more or less pooh-poohed. Now, gentlemen, I would especially like to have your opinion on this point. How long do you consider a horse may work with an injury to the poll, *i. e.* an unperceived injury, before poll evil is perceptible to a practitioner? Of course we all know the greater the violence or injury to the part the sooner we get the signs of disease. What makes me ask this question is that, seeing the above-mentioned horses were not haltered or harnessed before three years of age, and in one the disease breaks out at four years of age, another at five, and the third at seven, could it be due in all cases to what is called lounging, swinging, or breaking horses in?

Then, again, gentlemen, arises the question of turning out to grass after recovery in such cases. When this does happen, I

am told by very old and good practitioners that when the ligamentum nuchæ is not interfered with, and the animals have made a thorough recovery, there is no harm in letting them graze. I must confess I have no experience in this matter, but, judging from the nature and seat of the disease, I should certainly not recommend it. I would also ask you what you consider the best means of preventing recurrence. One of the cases under notice to-night seemed to all intents and purposes to have recovered, was sent home and worked for four months, when to our horror and disgust it broke out again. We have had the horse under treatment a second time, and again succeeded in healing up the parts. I have advised the owner not to work the horse again, but to make him up for sale.

Now, gentlemen, we come to the most particular part of my paper, viz. treatment. Of course we are not going to discuss the properties of garlic, onions, &c.

No doubt every member here to-night will have a style of treatment of their own, and I may also state they are all, perhaps, more or less successful. Before pus is formed and swelling is only apparent, I have found great benefit from applying a good strong iodine blister to the affected parts, together with the administration of a purgative. I was advised by an eminent practitioner to first use cold-water applications, *i. e.* in the primary stages. I must admit I never think of cold-water treatment in cases of this kind. My first thought is just what I have first stated: apply a good blister over the part, and if necessary repeat it. If we are sure that pus is fully formed we cannot open the abscess too soon, by making a good free cut with the knife, and do not be afraid of using it. The cut must be made longitudinally, following up the sinus to the very end if possible, taking care not to cut a muscle transversely, as by so doing we get what too often follows these cases—poking of the nose. After laying the sinus well open we generally dress the wound with antiseptic or digestive liniment, at the same time using every means in our power not to allow the opening to heal at the top first. This is in a great measure obviated by packing the wound with fine tow previously steeped in the above-mentioned liniment, and I am sure I need not tell you, gentlemen, how difficult it is to keep the tow in the wound. I may state that in packing the wound we should be very careful, especially if it is a deep one. I have heard of a veterinary surgeon, one who was well known to nearly all present, having a case of this kind, and in packing the wound the horse happened to throw up his head, and in an instant he (the horse) was *non est*. In fact, gentlemen, our veterinary friend had pithed him. I simply mention this to show how careful we ought to be in such cases. We often find it necessary to keep down the most external granulations by the application of caustic. In conclusion, gentlemen, I must say, I do not believe in injecting caustic into the sinuses without first free use of the

knife. If caustics are injected we find structures destroyed, we ought by all means to try and preserve especially the ligamentum nuchæ.

I forgot to mention earlier that in one case we resorted to the old-fashioned practice of seatons, and I must say it answered remarkably well.

Since I wrote this paper, three months ago, I have had two more cases, which were treated, as I have stated above, by opening the wounds longitudinally and dressing with digestives. One of the two cases has quite recovered; the other we have under treatment at the present time, and is doing well.

Well, gentlemen, we have still another class of wounds, viz. quittors.

There is very little difference really in the two; they are both of a burrowing nature. If, gentlemen, the question was put to me which of the two would I prefer, supposing I was obliged to have one, I really should not know which to choose.

In one of the works I referred to earlier, the one published in 1734, this disease is called "quittor bone," and is defined to be a hard round swelling upon the coronet of the hoof, betwixt the heel and the quarter. I think we cannot find a better definition than the one given by Professor Williams, viz. "a fistulous wound upon the quarters and heels of the coronet, generally caused by treads, pricks in shoeing, suppurating corns, &c.

I believe, gentlemen, you will agree with me when I say there is not a city or town in the United Kingdom where quittors are so common as in Liverpool; in fact, not quittors alone, but diseases and injuries to the foot in general.

Perhaps the most common cause of quittors in Liverpool is neglected treads. What I mean by a neglected tread is this: a horse, for instance, going along the line of docks, slips or makes a false step, and thereby injures himself in the coronet with the opposite foot. The carter seeing this, and having the fear of being discharged by his employer, instead of telling his master when he goes home that the horse has received an injury to the coronet, deliberately goes to the cart or long wheel and scrapes off some of the thick grease and dirt and smears it over the wound. This sort of thing goes on for days, until the horse becomes so lame as to be unable to perform his usual work. Then, on removing the hair and washing the wound, instead of finding an ordinary wound, which after a day or two's rest and attention would be well, we find a fistulous opening, or, in other words, a "quittor." Of course there are other causes of quittor, as already mentioned, such as suppurating corns, iron corns, &c., but this, I have no doubt, you will allow is the principal cause.

I have mentioned the docks as being the principal place where treads spring from, but I should not forget to draw your attention (I mean those of our members who do not reside in Liverpool) to the hilly state of our city. Horses stopping suddenly

and starting heavy loads on the sets are apt to and do tread themselves.

In Manchester they have neither the steep streets nor docks to contend with, at least *not yet*. When they get this great ship canal made, and when all the shipping goes to Manchester—when Manchester becomes a seaport, which no doubt will be the case by-and-by, then it is they will have plenty of quittors.

Now, gentlemen, with regard to the treatment of quittors. I will give you first the treatment of 150 years ago. Here is one:

First cut the hoof to the quick, then boil a snake or an adder till the flesh part from the bone, and be molten as an ointment; then anoint the sore place therewith very warm, even to the bottom, and, dressing the wound, keep the foot clean from any filth, for this both drieth and killeth the quittor bone.

Another ancient treatment used to be made up of the following:

Goats' dung two ounces, sheep's tallow three ounces, and as much strong vinegar as will suffice to boil them together, and then therewith to dress the quittor bone until it is clean whole.

Gentlemen, I hold there are two things necessary in order to ensure a satisfactory result in cases of quittor. The first is, bottom your sinus or sinuses, do not be frightened, secure your horse firmly in the stocks, then go to work and, to use a vulgar phrase, make a clean sweep.

I do not believe in the continual use of arsenic, bichloride of mercury, or any such sloughing agents. Trace the sinuses with your probe, find out where they go to and how many there are; then with the hot iron take the whole piece out, after which treat as a common wound; and if a sinus should form again take it out in the same way. No doubt you will think this very heroic treatment, but I ask those of you who have not tried it to do so, and I think you will find it to answer in nearly all cases.

I happened to be in Yorkshire a few months ago, when I met with a very old friend of mine, a veterinary surgeon, and in the course of our conversation, &c., quittors were mentioned. My friend told me he had been treating a case with iodiform, and with very good results. In fact the case got well. He simply wetted the probe, then getting it charged with the iodiform, applied it to the sinuses, and he told me it was surprising the effect it seemed to have on the parts.

Of course, gentlemen, I simply mention this in passing; I have not tried it myself.

Now, gentlemen, the second thing in the treatment of quittor is this: Do not be always probing and interfering with them. When you have thoroughly bottomed the sinuses, as before stated, and you are sure you have bottomed them, then leave the parts alone to nature.

We, gentlemen, as veterinary surgeons, interfere too much

with our cases. We cannot cure anything; we can only assist nature, but instead of assisting nature we retard her by our continual interference. I remember when a boy at home (which was not fifty years ago) my father had a mare with quittor. The mare in question was attended to by a M.R.C.V.S. for some time, but without any apparent benefit. At last some old fellow turned up (and I am sorry to say there are plenty of them, especially in country places) who undertook the case on the no cure no pay system, and, gentlemen, I assure you in six weeks the mare was well. What he applied to the foot I do not know; it was a liquid acid or caustic of some kind.

It is not for what he applied to the wound that I mention this case, but it was the absolute rest he gave the parts afterwards, only coming to look at the mare once a week.

There is another thing I wish to mention before I close, and that is this, I do not believe at all in bandaging up quittor wounds. If there is any pus forming we prevent its escape, and, what is more, we keep from the wound one of the nicest and mildest astringents we have, viz. atmospheric air.

Gentlemen, I believe 50 per cent. of our quittor cases if simply turned out to grass when it is seasonable would recover of themselves.

An animated discussion followed the reading of Mr. Kitchen's paper, in which nearly all present took part.

*Mr. Greaves* proposed a vote of thanks to Mr. Kitchen for his very able and instructive paper, seconded by *Mr. Morgan*, and carried.

A vote of thanks to the President then terminated the meeting. ALEXR. BAIN, *Hon. Sec.*

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## LANCASHIRE VETERINARY MEDICAL ASSOCIATION.

QUARTERLY MEETING, held at the Blackfriars Hotel, Manchester, June 13th, 1883.

*Present*—Mr. William Woods, President, in the chair, also Messrs. Peter Taylor, Wm. Whittle, W. A. Taylor, S. Locke, G. Morgan, E. Faulkner, T. Hopkin, J. W. T. Moore, J. Storrar, H. Beard, A. H. Darwell, T. Briggs, W. Davidson, J. Bunnell, J. W. Ingram, and J. B. Wolstenholme, members, with the following visitors:—Messrs. James Freeman, New Austenberry, and two other gentlemen.

The minutes of the last meeting were read and confirmed, and letters regretting inability to attend were placed on the table from the following gentlemen:—Professors Williams and Whalley, Messrs. Thomas Greaves, J. H. Cox, R. Reynolds, A. Bain, E. Kitchen, and Wm. Leather.

The *Secretary* proposed that Mr. Horrocks, M.R.C.V.S., of Burnley, be a member of this Association, seconded by *Mr. S. Locke*, and carried unanimously.

*Mr. S. Locke* drew attention to the will of the late Mr. Field, in which under certain conditions the munificent bequest of £1000 is made to the Royal College of Veterinary Surgeons, and gave notice that at the next meeting he would move a resolution as to the means to be taken to raise another similar sum.

An illuminated address of condolence with the family of the late W. A. Cartwright, Esq., F.R.C.V.S., of Whitchurch, was then placed before the members, in accordance with the resolution made at the last meeting, and the Secretary was instructed to forward the same.

*Mr. W. A. Taylor* read a very able paper on "The Transmissibility of Tuberculosis," and concluded by moving "That in the opinion of this meeting tuberculosis ought to be included in the Contagious Diseases (Animals) Act, and that the requisite restrictions and regulations to combat with the malady should be left in the hands of the veterinary advisers of the Privy Council."

This resolution was seconded by *Mr. T. Hopkin*, which, at the close of a lengthy discussion, was carried. The following gentlemen spoke to the question, viz.: the President, Peter Taylor, Jas. Freeman, W. Whittle, J. W. T. Moore, J. Bunnell, E. Faulkner, Jas. Storrar, and J. B. Wolstenholme.

A vote of thanks to Mr. W. A. Taylor for his valuable paper concluded the business of the evening.

JOHN B. WOLSTENHOLME, *Hon. Sec.*

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## NEW MEMBERS OF THE PROFESSION.

AT the meetings of the Court of Examiners of the Royal College of Veterinary Surgeons, held on the 9th and 10th July, 1883, the following students from the Royal Veterinary College were admitted Members of the Profession:

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| Mr. George Thos. Pickering . | New Walk Terrace, York. |
| — Evan P. Evans . . . . | New House, Castleton, Cardiff. |
| — Robert Hill . . . . . | Milton, Stoke-on-Trent, Staffs. |
| — Henry Thos. Pease . . | Rusholme Hall, nr. Selby, Yorks. |
| — William R. Bull . . . | Trusley, Etwall, Derby. |
| — Charles Morgan . . . | Rhiwfelin, Abergwili, Carmarthenshire. |
| — James Thos. Twiss . . | Ashford, Co. Wicklow, Ireland. |
| — William F. Shaw . . . | Hackney, London. |
| — George Wm. Beck . . | Pontefract, Yorks. |

The following students passed their "Second" Examination on 11th July, 1883:

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| Mr. A. E. Richardson. | *Mr. J. F. Farrington. |
| — Frederick A. Moss. | * — A. V. Field. |
| — Wm. Jas. Moses. | * — John Brett. |
| — G. Stear. | — P. G. Luff. |
| — G. W. Roberts. | * — A. Macraith. |

The following students passed their "First" Examination on the 12th, 13th, 14th, and 16th July, 1883:

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| Mr. W. Blunsom. | †Mr. J. Blakeway. |
| — J. Cooper. | — G. Goodliffe. |
| — F. P. Santy. | — P. D. Langley. |
| — A. Johns. | — W. Ascott. |
| — R. Richards. | — F. W. Melhuish. |
| — G. H. Pickwell. | — J. E. Shoolbraid. |
| — A. T. Farr. | — F. Eassie. |
| † — W. Littlewood. | — C. Griffith. |
| * — A. Marriott. | * — H. Buckingham. |
| — G. Boulton. | — A. H. Pope. |
| — A. H. Beeby. | — H. J. Dawes. |
| — A. E. Shorten. | * — A. Brassington. |
| * — M. G. Byerley. | † — C. Winteringham. |
| — E. Ebbetts. | * — E. R. Smythe. |
| * — G. S. Arkcoll. | * — G. H. Gibbings. |
| — W. E. Cawdle. | * — W. R. Walker. |
| * — A. Cawdle. | |

# Veterinary Jurisprudence.

## CAN A COW HAVE GLANDERS?

At Wolverhampton, on July 13th (before W. F. F. Boughey, Esq., stipendiary magistrate), Henry Stroud, cattle dealer, Banbury, appeared to two summonses charging him with causing to be sent by rail a diseased or suspected animal, and next, cruelty to a cow.

Mr. H. B. Hill appeared in support of the charge, and Mr. R. A. Willcock defended.

*Mr. Hill* said that on the 24th June last Inspector Dawson, an officer of the Society for the Prevention of Cruelty to Animals, noticed two beasts—most hideous animals—being taken along Bilston Street to the Cattle Market. Dawson at once inspected them, and then drew the attention of the medical officer of health for the town, of the sanitary inspector, of Mr. Hill (veterinary surgeon), and of Mr. Newnham, one of the borough magistrates, to them. The animals were at once condemned as being altogether unfit for human consumption, and ordered to be

* Marked thus, passed with *Great Credit.*
† Marked thus, passed with *Very Great Credit.*

killed; and on a *post-mortem* examination being made of them the cow was found to be suffering fearfully from cancer, which, however, was not a disease comprised within the meaning of the Contagious Diseases (Animals) Act, under which the charge was brought, and was badly affected with glanders. The animal was not a stranger to his Worship, as a man had been fined for exposing it in the Cattle Market. The most serious case against the defendant was, apart from that of cruelty, in sending, or causing to be sent, an affected animal along the railway and public thoroughfares into a public market, with the object of having the beast converted into food for human consumption. After reading the clauses of the Acts under which the prosecution was instituted, Mr. Hill went on to say that he understood several veterinary professors from different parts of the country were to be examined to show that glanders in a cow was of very rare occurrence. That, however, would not prove that such a disease could not exist in a cow, but witnesses for the prosecution would be called, who would speak from what they saw on the beast being examined.

*Inspector Dawson* having spoken to the appearance of the animals on their being taken into the Cattle Market,

*David Stephens*, cattle foreman, deposed that he had received a consignment note with the two animals from Banbury.

*Mr. J. Woodroffe Hill*, F.R.C.V.S., said the defendant called at his house on the 27th June, inquiring who was going to pay him for the two beasts, and witness replied he could not say; he had better go up to the Town Hall. The defendant said he had never heard of a beast with cancer being taken from a man before. Early on the same day he was called to the London and North-Western Station to see the cows, but they had been removed to the Cattle Market. On going there, he found the cow with its head enormously swollen, particularly across the nostrils, the measurement across the nose being exactly the same as across the horns. The lower portion of the face and the lips was denude of hair, with the exception of one or two scant patches. There was a discharge from the nostrils of a dirty glutinous material, mingled with blood, and when the animals snorted a large mass of this matter came out of the nostrils. The nostrils were so much swollen that they looked like two round holes, their natural shape being entirely lost, and the animal had the greatest difficulty in breathing. He made a *post-mortem* examination of the body of the cow at the horse-slaughterer's, and found miliary tubercles towards the edges of both lungs: the liver was also full of tubercle. A similar condition existed in the liver of the bullock. Both the heads and a portion of the liver were removed to his infirmary for further examination. On dividing the head of the cow down the centre he found, on the left side of the membrane covering the septum nasi, one veritable or true chancre, two partially developed ones, and, a little above these, a group of eight nodules, whilst higher up was a stellate-shaped cicatrix of a healed ulcer. On the right side there was one large ulcer. The Schneiderian membrane in each nostril was of a dull leaden colour, streaked with blood-lines and pus. The sub-maxillary gland on the right side was enlarged. These conditions were distinctive indications of glanders. An examination of the bullock's head showed that incipient glanders existed in that beast.

In cross-examination, witness said he could not tell the period of incubation of glanders in cattle; no one could tell at present. It was not a case of pyæmia. He had been in practice for seventeen years, and had never seen a glandered cow until this one, but it had been produced in other ruminants, also in poultry and rabbits. Dogs, until recently, were

considered exempt, but this year there was overwhelming evidence to the contrary, and so it might be in cattle. The discharge was continuous, though collective. He did not agree with the opinion given by Steele, in his treatise on the 'Diseases of the Ox,' respecting the disease of glanders. He considered Dr. Fleming by far the highest authority. This was certainly not a case of malignant catarrh. The animal was decidedly glandered.

*Mr. C. A. Newnham*, surgeon, corroborated the evidence of the last witness, and added that, as a magistrate, he ordered the animals to be destroyed as unfit for human food. He further added, the cow was greatly distressed, heaving at the flanks, the nostrils were blocked with bloody mucus mixed with matter, and when snorting she snorted the same matter out. The tongue and lips were blue owing to the difficulty of getting air into the lungs. At his request the heads of both animals were taken to Mr. Hill's for examination. Witness found the nasal mucous membrane ulcerated. He considered it a case of glanders.

*Cross-examined.*—The salivary glands were enlarged. He wouldn't disagree with Professor Pritchard that cows under all circumstances breathed through the mouth. Witness here described the anatomical difference between salivary and lymphatic glands. He had not seen a case of malignant catarrh.

*Re-examined.*—He had made the *post-mortem* examination of the bullock's head himself, as to the cancer; found an indurated submaxillary gland, but couldn't say if an indurated gland was indicative of glanders. He didn't see the inside of the nasal chambers.

*Mr. J. H. Love*, surgeon, deposed that on the 27th June last he was acting as medical officer of health for the borough. He examined a cow at the Cattle Market suffering from cancer, and he confirmed the testimony of the previous medical witnesses with respect to the disease of glanders. Coloured illustrations executed by Mr. J. W. Hill, depicting the appearance of the heads and nostrils, were at this stage put in as evidence, their truthfulness being attested by the medical men, though objected to by *Mr. Willcock* as not being drawn to a scale.

*Mr. Willcock* was about to examine the witness with regard to evidence he gave respecting a woman in a criminal case in order to show that he had made a mistake respecting the "anatomy of the human frame," but the stipendiary objected; stating it was an exhibition of bad taste, and advised Mr. Love not to answer him.

*Cross-examined.*—He knew a great deal about veterinary matters, but had not seen malignant catarrh in cattle, or glanders, until this case. He was suspicious of the discharge at the time he saw the cow alive.

*Mr. Blanton*, inspector of nuisances, deposed that he saw the head of the bullock put into a bag and taken to Leach's yard, for the purpose of *post-mortem examination.*

*Mr. Joseph Leach*, horse slaughterer, said the indications of the cow were similar to those of a horse suffering from glanders. He opened the head at Mr. Hill's. It was very badly ulcerated, exactly the same as he should find in the head of a horse suffering from glanders. He had seen hundreds of such cases in his vocation. In cross-examination, he acknowledged that during the whole of his forty years' experience he had never known before of a cow suffering from glanders. For the defence, *Mr. Willcock* contended that it was impossible, in the opinion of the highest veterinary authorities, for a cow to be attacked with glanders, the disease being solely confined to horses, asses, or mules. He should call professional witnesses who would prove that in the whole course of their experience they never heard of a glandered cow. It was impossible ever to

inoculate glanders in a cow. Witnesses would be called to show that the cow in question was kept in a field from the beginning of May to the 26th of June, and none of the horses that were with it in the field had suffered from glanders.

*Professor William Pritchard* was then called. He said he practised in London as a veterinary surgeon, and for twenty years was a teacher at the Royal Veterinary College, was a member of the Council of that College, and one of the Board of Examiners for England and Scotland. He was intimately acquainted with the disease known as glanders. He never knew of a glandered cow, and did not believe it possible for a cow to have glanders. He should not hesitate to turn a cow into a field with horses suffering from glanders. He had attempted to inoculate a cow with glanders from a glandered horse, and failed. He attempted with the same cow several times, but not from different horses. Professor Simonds also attempted, and failed. He disagreed with the evidence of Mr. J. W. Hill that a stellate cicatrix could exist without the whole of the lungs being tuberculated, and some going into abscesses. Tubercle in the liver was no indication of glanders. In very old cases an abscess might be found, but not the characteristic tubercle of glanders. The discharge at the nose of a glandered animal was continuous and regular. He did not consider the disease in the cow now referred to was one of glanders.

*Cross-examined.*—He lectured on anatomy of animals at the Royal Veterinary College for over fourteen years, and made hundreds of *post-mortem* examinations. Scores of cows had been exposed with glandered horses, and were never attacked with the disease. Animals, through peculiar idiosyncrasy, might be unsusceptible to contract disease. Had made experiments on horses, asses, and mules, but upon no other animals. George Fleming was the greatest writer of the present day, but the cases he quoted were what others had stated, not what he himself had witnessed. The discharge of glanders was continuous and regular. If mixed with blood, should infer there was ulceration, but there were other diseases where the same thing occurred. The discharge could not collect, there being no cavities in the nostrils. A cow had not a false nostril the same as a horse. The discharge could not collect there and be snorted out without going against gravity.

*By the Stipendiary.*—There was a difference of opinion as to the function of the false nostril.

*Cross-examined.*—He inoculated the cow with an ordinary lancet inside the vagina and nose. He did not think the discharge would collect from the edges of the nostrils swelling up. He had never seen a case of glanders where the symptoms were localised. He did not agree with Professor Garside's reported cases in the *Veterinary Journal.* He knew the Brown Institute; he also knew Dr. Burdon Sanderson, and that Professor Garside originally assisted there. He was not aware that Government aided experiments there by grants. If the cases were of such recent date, he should have thought more would have been heard of them. He was not aware that it was supposed at one time that human beings were not susceptible to glanders. He had unfortunately lost a brother through it. He was not aware that goats were susceptible to the disease.

*Mr. E. Beddard,* M.R.C.V.S., Wolverhampton, said his practice lay chiefly amongst cattle, and he had never, during his twenty years' experience, heard of glanders amongst cows. He could not say that he had known cows to be kept in company with glandered horses. In cross-examination he said he did not see the *post-mortem* examination of the

body of the cow made, but he did not think this was a case of glanders, or that the discharge was characteristic of glanders.

*By the Stipendiary.*—The case was scrofula.

*Cross-examined.*—It might be cancer. He recollected Mr. Pritchard, sen., confirming Mr. J. W. Hill's opinion in a previous case of glanders, where he (witness) had considered it otherwise. He had not mistaken another case until it was demonstrated by Mr. Hill inoculating a pony. He should differ from Mr. Hill because of the healed ulcer.

*Mr. Robert Cartwright*, M.R.C.V.S., spoke to examining the beast in question and another on the 27th June last, and passing them as being free from foot-and-mouth disease. During his examination he saw no symptoms of glanders, and he had never heard of glanders among cows. In reply to the Stipendiary, the witness said he only examined the beasts to see whether they were free from foot-and-mouth disease.

*Cross-examined.*—He was speaking from his own experience, had only examined the animals for foot-and-mouth disease; he had seen a few cases of glanders; he was not aware a horse he had condemned was alive and well. It was not contrary to law to keep glandered horses alive.

*By the Stipendiary.*—He considered the discharge due to chronic catarrh.

This being the whole of the evidence offered for the defence, the *Stipendiary* said there was a very strong presumption at present that glanders could not be found in a cow. Therefore under these circumstances, and finding a difference of opinion in the medical evidence, he could not convict.

*Mr. Wilcock* remarked with regard to the second summons against the defendant for cruelty, that Professor Pritchard would speak as to the effects of cancer, as far as cruelty to the beast and its removal were concerned. Over two hours were occupied in driving the animal four miles, and there was evidence to show what took place from the railway station to the market.

In the course of further discussion, the Stipendiary said he dismissed the case he had just heard from want of actual proof.

*Mr. Wilcock* asked to be allowed costs, as, under any circumstances, the defendant, who gave £20 for the cow, was bound to be a loser by it.

The *Stipendiary*, however, declined to allow costs.

*Mr. Wilcock* said that during the hearing to-day the defendant had been served with another summons returnable on the 28th inst., charging him with unlawfully depositing in the market a cow unfit for the food of man.

*Mr. Hill* said he knew nothing about that summons, and *Mr. Green* (magistrates' clerk) said his court knew nothing about it.

*Mr. Blanton* (sanitary inspector) said it was taken out by the order of the Sanitary Committee.

It being six o'clock, the Stipendiary adjourned the summons for cruelty until that day month.

The hearing, which lasted over four hours, created considerable interest, especially among butchers and dealers, of whom there was a large attendance.

# Parliamentary Intelligence.

## THE IMPORTATION OF FOREIGN CATTLE.

HOUSE OF COMMONS; *July* 10*th*, 1883.

*Mr. Chaplin* rose to call attention to the continued importation into England of foreign live animals suffering from contagious disease, to the consequent prevalence of foot-and-mouth disease in various parts of the United Kingdom, and to the recommendations contained in the report of the Royal Commission on Agriculture, with regard to the landing of foreign live animals in future, and to move: "That this House desires to urge on her Majesty's Government the importance of taking effectual measures for the suppression of foot-and-mouth disease throughout the United Kingdom, and it is of opinion that, while for this purpose it is necessary that adequate restrictions, under the powers vested in the Privy Council, should be imposed on the movements and transit of cattle at home, it is even more important, with a view to its permanent extinction, that the landing of foreign live animals should not be permitted in future from any countries as to which the Privy Council are not satisfied that the laws thereof relating to the importation and exportation of animals, and to the prevention of the introduction or spreading of disease, and the general sanitary condition of animals therein, are such as to afford reasonable security against the importation therefrom of animals which are diseased." The hon. member said that his contention would be that the whole of the loss from foot-and-mouth disease since September, 1880, must be traced directly to the landing in England of foreign live animals from an infected port; that as long as importation of live animals from infected districts was continued we could never hope for freedom from disease; that it was the duty of the Government to take whatever steps might be in their power to eradicate the disease by domestic regulations and to prohibit the landing of foreign live animals from infected countries; and that in taking this course the Government would be acting in the best interests of the consumers of meat. (Hear hear.) If it could be shown that there were any good grounds for believing that the disease was indigenous to this country, his case would be proportionately weakened, but the overwhelming mass of evidence was against the conclusion. It was said that the effect of carrying out his motion would enormously increase the price of meat. (*Mr. Mundella:* Hear.) He held an exactly opposite opinion. The Vice-President of the Council had stated that this motion would exclude from home consumption foreign meat to the value of £9,000,000. But that sum represented the total import, and his motion would not affect importation from Sweden, Norway, Denmark, and British North America, which were free from the disease. His motion would really interfere with importations to the value of £6,400,000 only, which, large in itself, was a trifling proportion of the whole annual consumption. He had ascertained the amount of that consumption as carefully as he could from the calculations of Sir H. Meysey Thompson, Mr. J. A. Clarke, and Sir J. Caird, and (excluding hams) he found it to amount to 14,857,002 tons. The total import was 105,000 tons, but of that 45,000 tons came from the uninfected countries which he had named, and therefore his motion would interfere with the importation of 60,000 tons, or

something like 4 per cent. of the whole annual consumption. Was it conceivable, then, that the effects of his motion on the price of meat would be so alarming as some of his opponents supposed? The case—always a strong one—in support of his resolution, had been strengthened by recent events. During 1880 the disease was completely stamped out, and for nine months the country was free from it. It was unfortunately reintroduced by the landing of a diseased cargo at Deptford. That fact had never been denied. The President of the Board of Trade had said that he would not acknowledge it was proved, but against his opinion there was the admission of Professor Brown, who presided over the Veterinary Department of the Privy Council. Since September, 1880, there had been very little short of 12,000 odd outbreaks of foot-and-mouth disease, and there was no doubt in the world that the direct losses which had been undergone by farmers from that disease during the last three years had been really enormous. (Hear, hear.) To that must be added the indirect losses resulting from the restrictions placed upon the movement of their own cattle, from the closing of markets and fairs all over the country, and from forced sales, which brought upon them infinitely greater loss than members of the House generally speaking had the smallest idea of. (Hear, hear.) He maintained that as long as this importation of cattle from infected countries was permitted they never could hope or expect to be free from the ravages of the disease. In spite of all the mischief which they knew had resulted from the landing of that one cargo at Deptford in 1880, as many as 307 cargoes of diseased animals had been landed in this country from that time to the present. It was the duty of the Government, so far as they could do it, to free them from this state of things in the future. (Hear, hear.) How was it to be done? It could be done in one way only, and that was by taking measures which would be sufficient to stamp the disease out again as it was stamped out before, and to prevent its reintroduction from abroad. The existing law, he maintained, was quite sufficient to enable the Government to do so. In the exercise of the discretionary powers invested in the Privy Council under the Act of 1878 they had quite recently issued an order prohibiting the landing of all live animals from France, and all he was asking of the Government was that they should go just a little bit further than they had gone, and should deal with all other countries from which there was the least fear of importing foot-and-mouth disease precisely in the same manner as they were dealing with France at the present moment. (Cheers.) They had a large and growing population in this country, and a steadily increasing demand for meat. Where were they to get an adequate supply? The surplus supplies in America were being so contracted every day that it was impossible to expect that for any very great length of time we could receive any large permanent addition to our meat supply from that country. (Oh, oh.) For such a supply of meat at reasonable prices as they desired to see available for the people of this country there were only two sources, in his opinion, to which they could look with any certainty in the future. One was their own production at home, and the other was the development of a large dead meat trade with their colonies—with Australia and New Zealand for instance, from which vast quantities might come. The present high prices of meat, in his opinion, were mainly owing to the greatly diminished number of stock in their own country, caused principally by the introduction and loss from foreign diseases, and notably the cattle plague; but he thought that it was as certain as anything could be that, with adequate security against the reintroduction of these diseases, their own flocks and herds

would be largely developed and increased in a future time. (Hear, hear.) In conclusion, the hon. gentleman said he advocated this measure because he honestly and conscientiously believed that it was in this direction only that they should be able to secure large, abundant, and cheap supplies of meat for the population of this country in the future. (Hear, hear.)

*Colonel Kingscote*, in seconding the motion, said he did so in the belief that he was advocating what was for the benefit of the consumers of this country, and not for that of the agricultural interest alone. (Hear, hear.) Although representing a county, he believed he was returned, not by the agricultural interest in that constituency, but by a large mining population; and if in any way he were to advocate measures which would enhance the price of meat, he did not think his seat would be worth very many hours' purchase. (Laughter.) If they did not take means to stamp out the diseases of cattle from their country nobody would be induced to enter upon the enterprise of breeding in the way in which it ought to be done in this country. (Hear, hear.) At the present moment, throughout the length and breadth of England, Scotland, and Ireland, the agricultural communities were suffering from the restrictions that had been imposed upon them by the Privy Council on account of the outbreak of the foot-and-mouth disease. He complained of restrictions in the transportation from one part of the United Kingdom to the other while foreign animals were coming in every week at water-side markets. The development of the dead meat traffic was perfectly feasible, but it must be forced upon the trade, who were at present interested in resisting it to the utmost. As to the amendments, of which notice had been given, he did not see much difference between that of the member for Salford (Mr. Arnold's) and the motion of the hon. member for Mid-Lincolnshire. The hon. member for Salford said that while continued and vigilant exercise on the part of her Majesty's Government of the powers entrusted to it was called for, the House did not consider it necessary to make further provision by legislation on the subject. Further provision by legislation was not asked for. The powers the Government had were sufficient. As to the amendment of the hon. member for Forfarshire (Mr. Barclay), the proposal therein contained, that the subject should at this period of the session be referred to a Select Committee, appeared to be making fools of members. He cordially supported the motion.

*Mr. A. Arnold* moved as an amendment: "That the recent prevalence of foot-and-mouth disease calls for the continued and vigilant exercise on the part of her Majesty's Government of the powers entrusted to it, not only with reference to the movement of live animals at home, but in regard to their importation from abroad; but this House does not consider it necessary, under present circumstances, to make further provision by legislation on the subject." He claimed that a case in favour of his amendment had been virtually made out by the mover and seconder of the motion, and that his amendment was in accordance with the feeling prevalent in the great centres of population. He was willing to admit that the two sides of the House should co-operate for the extirpation of disease. He remembered with sympathy the recent losses in British agriculture, but it should be recollected that losses were not confined to this country, and that it was not the importation of foreign cattle, but the unsuitable seasons that gave such fatality to diseases of cattle in this country. The live cattle trade was growing. The imports of last year were 1,418,000 animals, or 200,000 more than in the previous year. These imports (including Ireland) were 30 per cent. of the whole meat

consumption, and he had yet to learn that 30 per cent. was a trifling proportion. It must not, therefore, be assumed that to prohibit the importation of live animals would not check the supply of meat sufficiently to raise the price. He defied hon. members to prove that there had ever been contagion from the foreign animals' market—("Oh, oh")—though he admitted the probability. It was well that we should run small risk rather than lose the supplies. He believed it would be better that the foreign cattle market should be moved down to Thames Haven or some such place, where they could have 200 acres or more, and the cattle could be brought to market in a better condition. In the Deptford Cattle Market last year 3500 animals were slaughtered per day. The hon. member would prohibit this enormous supply. In concluding, the hon. member touched on the loss to the trade in hides and skins, and he contended that this motion was really an insidious revival of the policy of protection. (Ministerial cheers.)

*Mr. Giles*, in seconding the amendment, remarked that the fact that the motion was seconded on the Ministerial side, and the amendment on the Opposition side, proved that this was no party question. (Hear, hear.) All that was necessary, he maintained, was that the foreign cattle market should be isolated, and that the animals should be slaughtered at the port of debarkation. The prevention of the importation of live cattle would deprive the poor of a great portion of the meat they consumed, and he asked the House to consider the interest of the million rather than yield to the demands of a small minority.

*Mr. Barclay*, who had an amendment on the paper for the appointment of a Select Committee to inquire into the subject, entered on a review of past legislation on this question, the effect of which, he said, was not to prohibit the importation of cattle altogether, but to restrict it by compulsory slaughter at the port of debarkation. The hon. member (Mr. Chaplin) would go a step further, and allow no animals to be imported except it was quite clear to the Privy Council that the country from which they came was free from disease. He quite admitted that under the existing circumstances it would not be safe to admit the importation of store cattle from the United States, but he was quite sure the Government of that country were taking such measures as would enable them soon to send over their stock with safety. He thought the proper course was to have an inquiry in order to see how far they could go in the direction of excluding disease without reducing the supply of food before proceeding with any further legislation on the subject.

*Mr. Mundella* said that though he had been relieved from the representation of this Department of the House, yet as he had been connected with the administration of it for nearly three years, he ought to be able, if there had been any laches or blame, to give an account of what had been done. Whatever credit might be due for the working of the Act during the past three years was entirely due to Lord Spencer—(hear, hear)—who was a practical farmer, and took the greatest possible interest in everything relating to agriculture. Lord Spencer had brought the administration of the Act to a state of efficiency which was only now beginning to tell on the cattle disease of the country. The Act had had but four years to prove what it could do, and if hon. gentlemen would only allow it time it would give them the maximum of security with the minimum of restriction on the food supply of the kingdom. On the 16th of April the Duke of Richmond, the author of the Act, said he was quite prepared to admit that the Government had done all in their power to check disease, that the Act had been carried out in a most energetic manner, that the Veterinary Department of the Privy Council

had been all that could be desired, and that he doubted if he should have been able to carry out the severe restrictions which the Lord President had imposed. The Duke of Richmond had admitted to him in the handsomest manner that the Government could not have done more than they had done, and had acknowledged that they had gone beyond what he would probably have been able to do. The fact was the Government had been able to enforce restrictions because they were not suspected of any desire for protection—(hear, hear)—but only of a desire to prevent disease. This and previous motions of the hon. member for Mid-Lincolnshire were tributes to the success of the Act, for the only disease now mentioned was foot-and-mouth disease, whereas in 1877-8 rinderpest and pleuro-pneumonia were talked of, and foot-and-mouth disease was a secondary matter. What had the Act done for the extinction of pleuro-pneumonia? [*Mr. Chaplin:* This is a debate on foot-and-mouth disease.] The debate was not entirely that. In Great Britain in 1877 there were 2007 outbreaks of pleuro-pneumonia, and 5330 animals were attacked; in 1882 the number of outbreaks—which had been constantly diminishing—was 494, and the number of animals attacked was 1200. (Hear, hear.) Therefore they had every right to expect that in two or three years, if the local authorities would only use the powers which they possessed, pleuro-pneumonia would become extinct in this country. He thought that after what had been done it was not fair to make what was virtually an attack on the Government. (No, no.) Well, he had heard the cheers from hon. gentlemen opposite in the course of the debate. He could show letter after letter from Mr. Clare Sewell Read, thanking him for the restrictions he had imposed. Only on the 2nd inst. that gentleman wrote to him that they had not had such a clean bill of health in Norfolk for thirty years. The hon. member for Mid-Lincoln called for the abandonment of the main principle of the Act for which it had been advocated by hon. gentlemen opposite—the principle of compulsory slaughter at the ports. The hon. member himself formerly said that the object was not prohibition, but compulsory slaughter; now he asked for prohibition. [*Mr. Chaplin:* Because the Act has failed.] Then in that case the hon. gentleman should come forward with a Bill. He could not believe it was the intention of the House to pass the resolution without inquiring in what respect the Act had failed. Was it desired that the Privy Council should violate the whole spirit and intention of the Act? The resolution was ingeniously drawn, and it looked exceedingly plausible, but it meant total prohibition, whereas the principle of the Act was slaughter at the ports, the exceptions being total prohibition and free admission. He argued that this resolution, if carried into practical operation, would be as disastrous to the producer as to the consumer. Indeed, he believed that in the long run the farmer would be the greater sufferer, and in this contention he was supported by those who had had the daily administration of the Act. Four fifths of the whole supply from abroad would go at once, and the remaining fifth must follow on the first suspicion of disease, so that they would shortly come to the total prohibition of all foreign animals.

An *Hon. Member.*—They would come in as dead meat.

*Mr. Mundella* was afraid that the hon. gentleman who was of that opinion had not studied the question. Those who wished to lay their hands on the food of the people should bear in mind that it was practically impossible to increase the home supply, whereas the population was increasing at an enormously rapid rate. In the metropolitan markets at least 50 per cent. of the cattle sold were foreign, the proportion of

foreign sheep and swine being 61 and 94 per cent. respectively, and that supply could not be withdrawn without running the most serious risk of creating famine prices. As regarded the prospects of a dead meat trade, they had the experience of Belgium and Germany, from which, during a period of six years, they had not received a single pound of meat in exchange for prohibition. (Hear, hear.) But then it was said that if these diseases were prohibited the deficiency in the supply would be produced at home. He believed that they had been producing all they could at home. (Oh.) He was so assured by some of the very best judges. The great falling off in the home stock had not arisen from foot-and-mouth disease, although no doubt that had had its effect, but it was due to causes which were not preventible. He wanted to know how many years it would take the British farmer to overtake the supply of meat that was coming to this country from abroad. (Hear, hear.) England was adding a Leeds or a Birmingham to her population every year, that population had to be provided with food, and to do that it was necessary that the home supply should be supplemented by an abundant and cheap supply from abroad. What, then, was the good of talking of total prohibition of foreign cattle? If the hon. member had moved for a committee of inquiry into the question as to whether more could be done he might have grounds for claiming consideration at the hands of the Government. Possibly that legislation after five years' experience of it might be amended. But the present Act had been worked with the utmost rigour on the lines laid down by the House.

*Mr. J. Howard* maintained the necessity for more rigorous measures in reference to this disease. The average consumption of meat in this country was about 100 lbs. per head of the population, 78 of which was supplied by the farmers of the United Kingdom, 15 by foreign dead meat, 3 by countries free from disease, and 4 from countries infected with disease; so that out of 100 lbs. of meat consumed in this country we were only dependent on foreign live animals to the extent of 7 lbs. The time, he thought, had arrived when until a country could show a clean bill of health it must slaughter its cattle at home. The farmers of England demanded, from one end of the country to the other, that there should be freedom from the introduction of disease.

*Sir H. Selwin-Ibbetson* submitted there was sufficient power in existing Acts to enable the Privy Council to prevent the landing of any animal from a country infected with disease.

*Mr. Dodson* said if it was too late to proceed with Committee in July, it was also too late to proceed to legislate on this subject, and the resolution of the hon. member for Lincolnshire could not be carried out without legislation. The resolution would prevent the landing of animals from countries, not only where the Privy Council was satisfied of the existence of disease, but unless there was evidence of the non-existence of disease. The Government, therefore, could not accept the motion of the hon. member for Lincolnshire, but would accept the amendment of the hon. member for Salford, or would accept the suggestion for a Committee.

*Mr. Chaplin* did not agree that his resolution could not be carried out without legislation. He only asked that the same regulations should be applied to other countries that were now applied to France. The Privy Council had to satisfy themselves of the sanitary condition of the animals of any country, and to act accordingly. He could not accept either of the suggestions of the right hon. gentlemen.

After remarks by *Mr. Duckham*, heard with great impatience by the House, Mr. Arnold withdrew his amendment.

*Mr. Barclay* then moved his amendment that "A Select Committee be appointed to inquire into the working of the Contagious Diseases (Animals) Acts 1869 and 1878, and specially as to whether it is possible to take further steps for preventing the introduction of contagious diseases from abroad, without unduly interfering with the supply of food, and also whether the provisions for preventing the spread of disease can be made more effective."

The House divided—

| | |
|---|---|
| For Mr. Chaplin's motion . . . . . | 200 |
| Against . . . . . | 192—8 |

The resolution was agreed to.

## THE IMPORTATION OF CATTLE.

*July 16th.*

*Mr. Gladstone*, questioned by *Mr. Chaplin* as to what the Government proposed to do in consequence of the resolution passed by the House on the 10th inst., said they would carefully go over the case of each foreign country with respect to cattle disease and the regulations for its suppression. They would consider whether in any case the action already adopted by the country was behind the evidence already in their possession, and if it was they would make it their duty to bring it up to the point which the evidence might suggest. (Hear, hear.)

*Mr. Chaplin* understood the Prime Minister to mean that the importation of cattle from any country in which there was foot-and-mouth disease would be prohibited. (Opposition cheers.)

*Mr. Gladstone* asked the hon. member to give notice of the question.

*Mr. Chaplin* named Thursday, July 19th.

*July 24th.*

*Mr. Gladstone*, questioned by *Mr. Chaplin*, said he was not aware of having stated that the Privy Council were about to take evidence respecting the importation of disease with foreign cattle. The hon. gentleman asked whether the Government would abolish the practice of slaughtering foreign cattle at the ports, and would either allow them to pass when that course was justifiable or would exclude them from this country altogether. The Government could not undertake to do that, because it would not be consistent with the law. They had no intention at that moment of proposing further legislation on the subject.

*Mr. Chaplin* asked whether he was to understand that the Government intended to set at nought the resolution passed by the House on the 10th inst. (Opposition cheers.)

*Mr. Gladstone* replied that the hon. member could come to whatever conclusion he thought fit. The Government were desirous of giving to the resolution of the House the utmost effect compatible with that which was higher than any resolution of any House of Commons, namely, their obedience to the law. (Hear, hear.)

*Mr. J. Howard* inquired whether it was to be understood that, if the powers of the Act of 1878 should prove insufficient to stop the introduction of cattle disease, the Government would refuse to amend the law. (Opposition cheers.)

*Mr. Gladstone* did not think the question was justified. ("Hear, hear," and "Oh!") The Government meant to ascertain by careful inquiry whether they could act within the provisions of the existing law. Should they have reason to think those provisions insufficient, of course it would be their duty on the first opportunity to introduce a Bill. (Hear, hear.)

# FLEMING TESTIMONIAL.

## Corrected Statement.

| *Cash Received.* 1883—May 7th. | £ | *s.* | *d.* |
|---|---|---|---|
| 320 Subscribers | 475 | 2 | 6 |
| Bank interest | 2 | 2 | 0 |
| Total | £477 | 4 | 6 |

| *Cash Paid.* 1883—May 7th. | £ | *s.* | *d.* |
|---|---|---|---|
| Solid silver Pagasus centre-piece with glass, two 6-inch side-pieces on plateau | 107 | 10 | 0 |
| Two side-pieces extra | 20 | 10 | 0 |
| Extra for glass centre | 1 | 5 | 0 |
| „ „ four glasses | 2 | 0 | 0 |
| Octagon solid silver tray 21 inches, raised pierced border | 68 | 15 | 0 |
| Two silver shields, engraved with coat of arms and inscription, and oak chest to hold above | 10 | 0 | 0 |
| Diamond Ring for Mrs. Fleming | 30 | 0 | 0 |
| Painting full-length portrait | 105 | 0 | 0 |
| Painting half-length portrait | 52 | 10 | 0 |
| Two frames and inscriptions | 23 | 0 | 0 |
| Treasurer's expenses for stamps and stationery | 5 | 5 | 0 |
| Secretary's expenses for stationery and stamps | 28 | 0 | 0 |
| E. Stanley's expenses | 2 | 2 | 0 |
| Illumined address on vellum | 10 | 0 | 0 |
| Carriage of portraits and silver | 1 | 6 | 0 |
| Balance given to Mr. Fleming | 6 | 1 | 6 |
| Total | £477 | 4 | 6 |

Since this statement was made out One Guinea has been received from Mr. T. Caldecotte, A.V.D., India.

J. B. Martin,
*Hon. Secretary.*

# FITZWYGRAM PRIZES.

Royal College of Veterinary Surgeons,
10, Red Lion Square, W.C.
20*th July*, 1883.

Gentlemen,—The written portion of the Examination for these prizes took place in London and Edinburgh on the 23rd

May. The Practical was conducted in London on the 30th id. The result was that:

Mr. B. A. Clancy, No. 52, obtained First Prize and £50.
— W. H. Bloye, „ 50, „ Second „ £30.
— J. G. Parr, „ 51, „ Third „ £20.

I send the above report should you wish to give it space in your next issue.

Yours, faithfully,

A. W. Hill,
*Hon. Sec. and Superintendent to the above Examination.*

*To the Editors of the 'Veterinarian.'*

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## LETTER FROM MR. LAWRENCE C. TIPPER.

### Midland Counties Veterinary Medical Association.

The Shrubbery,
Balsall Heath;
*July* 14*th*, 1883.

Gentlemen,—In the report of Prof. Walley's lecture at the meeting of the above Association, as appearing in your last issue, there were several mistakes and omissions, due, no doubt, to the difficulty a lay reporter has in understanding the sense and importance of remarks made by a professional gentleman.

With your permission I will make a few corrections and additions, herewith enclosed for publication.

I am, yours, &c.,

Lawrence C. Tipper,
*Hon. Sec.*

*To the Editors of the 'Veterinarian.'*

P. 500, line 31.—Should read: upon the small cuneiform *and the heads of small metatarsal bones*—an arrangement which also existed in the inner aspect of the knee and fore-leg accounting for the development of splint internally.

Line 33.—In speaking of the pathology Prof. Walley said the statement was made by some authorities that bone spavin always originated from articular caries, but he showed specimens which he said proved this was not the case. The exostosis might originate from ostitis, periostitis, or syndesmitis.

Line 44.—Substitute *outside* of foot for *inside.*

P. 501, line 25.—Read for *certain splenic cases* "in special cases," *i. e.* when the tendon was interfered with by the exostosis.

Lines 24-5-6.—The Professor called attention to the grave nature of tarsal exostoses situated posteriorly and *associated* with *strain of subtarsal ligament.*

Line 36.—Substitute *might* for *must.*

Line 38.—Should read: striking the bones with the knuckles, or the foot with a hammer.

Line 44-5.—He said gouty disease was indicated *primarily* by distension of the small joint capsules of the hocks and knees; *secondarily* by deposition of calcareous matter therein; *finally*, anchylosis as a result.

P. 502, line 3.—After thoroughpin, the lecturer pointed out that the worst forms were those in which the bursa was distended inferiorly to its lowest limits, and when resulting from rheumatism and associated with fibrous papillomata on the bursal surface of the flexor tendon—a similar condition sometimes existing in the corresponding tendon and bursa of the knee.

In reference to the treatment of thoroughpin, he mentioned that he had seen a hock, which measured thirty-two inches in circumference, reduced almost to its normal dimensions by setoning and blistering, after repeated blisters and firing twice had failed to have any effect upon it; further, that aspiration was useless, and in one case, after firing, blistering, setoning and *repeated* aspirations and paracentesis had failed, he effected a cure by free evacuation and the injection of tincture of iodine.

In reference to seat of curb, Prof. Walley said that in the great majority of cases it was due to interstitial thickening of the connective-tissue sheath of the flexor pedis perforatus, not to strain of the calcaneo-metatarsal ligament—a theory held by the late Mr. Wilkinson, and quite untenable, as that ligament in whatever position the hock might be placed *could not be strained.*

## OBITUARY.

We regret to have to announce the death of Mr. Alexander Grey, M.R.C.V.S., one of the oldest and most widely known veterinary surgeons in Edinburgh. Mr. Grey, who graduated at the Edinburgh Veterinary College in 1836, has been in extensive practice in the city for nearly half a century, and though he took no part in public affairs, was much esteemed by a numerous circle of friends. Mr. Grey was for many years veterinary surgeon to the Royal Caledonian Hunt, and to the Royal Society for the Prevention of Cruelty to Animals.

We regret to have to record the death of Mr. Albert R. Charles, M.R.C.V.S., Clarges Street, London. He was a young member of the profession, having only obtained his diploma April 3rd, 1876.

### Funeral of Miss Dick.

The remains of Miss Dick, whose death was noticed the other day, were consigned to the tomb yesterday. A funeral service was conducted at the residence of the deceased, Craigkennochy, Burntisland, by the Rev. T. B. Kilpatrick, of the Free Church, and the Rev. James Parlane, of the United Presbyterian Church. A number of the leading inhabitants accompanied the remains.

THE

# VETERINARIAN.

VOL. LVI. No. 669. SEPTEMBER, 1883. Fourth Series, No. 345.

## Communications and Cases.

### REEVES' METHOD OF SEWER GAS PURIFICATION.

By R. V. Tuson, F.I.C., Professor of Chemistry, Materia Medica, and Toxicology, at the Royal Veterinary College.

Outbreaks of fever and other deadly diseases among horses and cattle, as well as among ourselves, are frequently to be traced to the breathing of air polluted with the gaseous and other emanations from sewage.

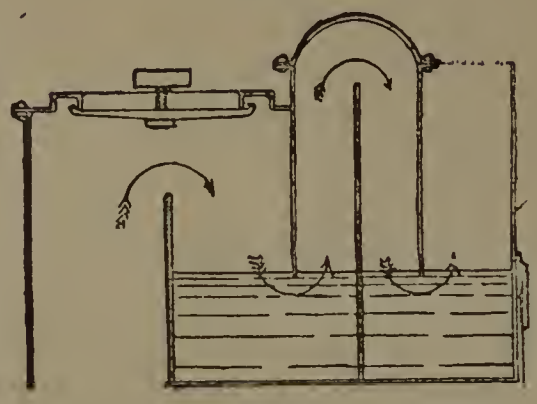
Hitherto the only attempt to avoid this most serious evil has been by the use of so-called ventilating shafts, ventilating holes, &c. But these arrangements are open to great objections, they do not distribute the gas equally, neither do they render noxious vapours inert, but simply convey them from the sewer, cesspool, &c., and discharge them into the atmosphere, which consequently becomes dangerously polluted.

To remove these drawbacks, Mr. Reeves, late engineer in Her Majesty's prison, Parkhurst, Isle of Wight, has brought out, after great labour and long investigation, an extremely ingenious and effective system of ventilation by which every particle of sewer gas is compelled to be acted upon by a disinfectant before it is permitted to escape into the air. Thus risk of development or spread of disease from sewage exhalations is prevented.

With the assistance of the two subjoined figures the construc-

tion and action of Mr. Reeves' apparatus will be readily understood.

Fig. 1.

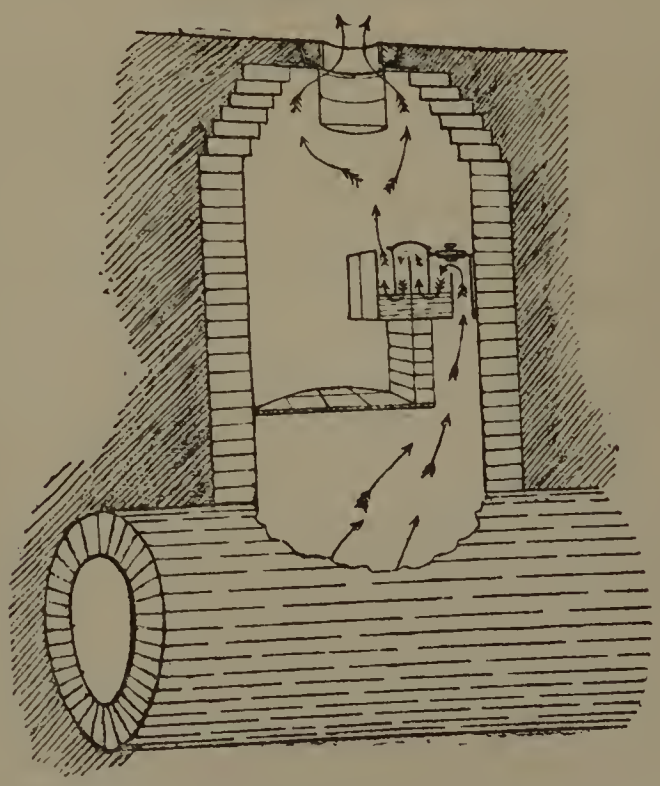


SECTION THRO PURIFIER

Fig. 1 shows the interior of an iron vessel, which can be fixed in the man-hole of a sewer, the crown of a cesspool, the base of a street lamp, or in any other suitable place. This vessel is divided into two chambers by a partition which rises from the bottom; one chamber contains a disinfecting liquid, and the other either a disinfectant or simply water. There are also two partitions which descend from the top, the lower edges of which are toothed, and only just dip the one into the disinfecting liquid, the other into the water.

It will be obvious that if increase of pressure takes place in

Fig. 2.



the sewer, cesspool, &c., from rise of temperature or the introduction of sewage, the gases which by the old plan would pass

into the air are compelled in Mr. Reeves' arrangement to traverse the fluids in the purifier, and to thereby become thoroughly disinfected.

Every purifier is furnished with an easily-acting automatic inlet valve, so that the slightest fall of gaseous pressure in the sewer is immediately followed by the ingress of pure air, a provision absolutely essential to the ventilation of sewers in which men have to work.

Fig. 2 shows one of these purifiers as fitted in the man-hole of a sewer.

The apparatus is inexpensive, is easily cleansed and re-charged with disinfectant, and when once fixed requires attention only about once every few months.

Mr. Reeves' invention has been successfully applied on a large scale in the Isle of Wight and elsewhere.

The system working on sewers may be inspected on application, and a working model of the apparatus may be seen in operation at 4, Finsbury Circus, London, E.C.

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## ON PLANTS IN RELATION TO ANIMALS.

By Professor James Buckman, F.G.S., F.L.S., &c.

(*Continued from* p. 539.)

Our notes on the Stellatæ may be concluded by a few remarks upon the genera:—

*Asperula*, Woodruffe, and Sherardia, Wild Madder.

The genus Asperula is a very interesting one, though it has little to separate it from that of Galium except its decidedly tubular flowers.

Mr. Johns describes the genus as follows:

"*Asperula*.—A family of herbaceous plants with square stems, whorled leaves, and four-cleft flowers, which are either pure white, white tinged with purple externally, or more rarely blue or yellow. Many of the species are ornamental, and well fitted by their habit for the decoration of rock-work. *A. odorata*, Woodruff, or Woodrowel (so called from the resemblance between its whorled leaves and the rowel of a spur), is a common woodland plant, conspicuous in May and June by its brilliantly white flowers, and at other seasons by its bright green leaves, arranged in a star-like form round the stem. The flowers are sweet scented, but the plant derives its name from the fragrance

of its leaves. This is not perceptible while the herbage is fresh, but after being gathered a short time it gives out the perfume of new hay, and it retains this property for years. Woodruff is a useful plant in shrubberies, increasing rapidly and thriving under the shade of most trees, even the beech. It is used in Germany to impart a flavour to some of the Rhine wines. *A. cynanchica*, a small trailing plant with slender stems, very narrow leaves, four in a whorl, and small white flowers delicately tinged with pink, occurs on chalky downs in many parts of Britain. It owes its specific name, and its popular name Quinsy wort, to its supposed virtues in curing quinsy. In the time of Gerarde, *A. arvensis*, a species with blue flowers, grew in many parts of Essex and divers other places in sandy ground.* It was also found during the present century in a slate quarry in Devonshire, but has disappeared. Most of the foreign species are hardy, and may be raised from seed."

Dr. Syme has described four species, which may be shortly distinguished as follows:

*a. Flowers white.*

1. *Asperula odorata.*—Sweet Woodruff.

*b. Flowers pink.*

2. *Asperula cynanchica.*—Quinsy-wort.

3. „ *taurina.*—Four-leaved Woodruff.

*c. Flowers blue.*

4. *Asperula arvensis.*—Field Woodruff.

1. The sweet woodruff is smooth all over with whorls of several leaves. The flowers are arranged in terminal cymes; when bruised it has a refreshing odour, which is much increased by drying.

The fresh plant is held to be very invigorating, and hence the Germans use it in the green state to flavour wine, such concoction getting the name of "Mai Drenck." The plant is common in woods, coppices, and shady places; it is sometimes grown in gardens both for use and as an interesting form of a pretty white-flowered plant. The following is Mrs. Lankester's description of its folk-lore:

"Sweet Woodruff.

"French.—*Aspérule odorante.*

"German.—*Waldmeier, Waldmeister.*

"This plant is known by the names of Woodrose or Woodrowd. Gerarde calls it Woodrowe and Woodroofe. Parkinson mentions it as Woodroofe. By some of the older herbalists it is spelt curiously by the repetition of double consonants, which form a

* 'The Treasury of Botany.'

puzzle in themselves if read aright—Wooddrwffee, double u, double o, double d, r, double u, double f, double e."

The pleasant haylike scent of the woodruff has caused it to find favour in village nosegays, although it is not until it becomes dry that the perfume is exhaled with any power. Gerarde says, "When being made up into garlands or bundles and hanging up in houses in the heat of summer, it doth very well temper the aire, coole and make fresh the place to the delight and comfort of such as are therein." He adds, "It is reported to be put into wine to make a man merry, and be good for the heart and liver; it prevaileth in wounds as *cruciata* and other vulnerary herbes do."*

2. Quinsy-wort or squnancy-wort is a small plant with whorls of four-leaves, two of which are shorter than the other two. Flower stem branched into capitate heads of more or less pinkish flowers.

Common to limestone soils, such as mountain limestone, oolitic limestones, and chalk, but rare on other formations. These rocks it ascends to their very tops, having a pretty appearance on their downy slopes. This summer we gathered it on the slopes and aggars of that grand Celtic camp on the heights or chalk downs near Blandford, in Dorsetshire. Here, curiously enough, the flowers were all white, whilst ninety-nine out of every hundred of the *Carduus palustris*, Marsh thistle, were white instead of the usually purple colour. On this camp were numerous examples of the *Ophrys apifera*, bee orchis, some of the flowers of which were yellowish white, and altogether without the rich colouring which gives such a character to the gaudy bee-like form. We are informed that this plant is known as the quinsy-wort from its supposed efficacy in that disorder. The French word *esquinance* supplies the name in its present form. It is now fallen into disuse in medicine. Sir J. E. Smith tells us that "Physicians do not, in our days, rely on the practice of old Dalechamp, who recommends this plant, outwardly as well as inwardly, to cure the squinancy or quinsy. Hence, however, we have retained an obsolete and unmeaning name for a plant which might easily have had one more expressive."† The roots yield a red dye, in which they resemble those of the galiums.

3. The *bull* woodruff, from which the name *A. taurina* is derived, has a capitate head of pink flowers. It is an escape from cultivation. Mr. Syme, who has admitted it into his grand new flora, gives the following localities :

* 'English Botany,' vol. iv, p. 228.
'English Flora,' vol. i, p. 198.

"About Cadiby and Market Bosworth, Leicestershire; in Westmoreland; near Roslin, Edinburgh; and about Perth."

4. The field woodruff, like the former, is scarcely a native plant, though occasionally examples have been observed under agrarian conditions in several counties, but even in these it is very uncertain, which may, doubtless, be accounted for from the fact that it has been introduced to different places about farms in foreign seeds.

The *Sherardia*, as stated by Dr. Bentham, is "a single species, with the corolla and fruit as an *asperule* and the habit of some southern species of that genus, but distinguished both from *asperule* and *galium* by the calyx, which has a distinct bordering of four or six teeth crowning the fruit."

Common as this plant is we have reason to conclude that it is not an aboriginal native, as it only occurs under agrarian cultivation. We are told that "this genus of plants was named by Dillenius after his patron and friend William Sherard, LL.D., Consul at Smyrna. He was born at Bushby, in Leicestershire, in 1659, and died in 1728. He was a distinguished patron of science, the reputed author of 'Scholæ Botanicæ,' founder of the botanical professorship at Oxford, and the collector of twelve thousand species of dried plants."*

It is curious that a plant so generally distributed should yet have no power attributed to it, but the truth is that the whole of the stellatæ are peculiarly devoid of signatures.

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## CRUELTY TO ANIMALS.

By William Walters, M.R.C.V.S., Checkley, Staffordshire.

> "Humanity to animals must be considered as one of the most prominent and satisfactory features in our nineteenth century civilization; and though there sometimes exists a certain degree of suspicion that over zeal in the good cause may tend to defeat its object, yet this must be tempered by the common-sense of those who understand the relation of man and animals, which were given him to use and not to abuse."—*Extract from Editorial of 'Veterinary Journal' for August.*

Most heartily do I endorse the noble sentiment contained in the above extract, and with equal ardour do I endorse many

* Sowerby's 'English Botany,' vol. iv, p. 231.

other sentiments contained in that Editorial on my case. I wish to goodness I could say the same of the whole production, but I am sorry I cannot. Nor can I speak in complimentary terms of the editorial writer's evidence before the Court, or of the evidence given by the other two veterinary surgeons who were with him: nor can any man whose mind is not pervaded with animosity, or an illogical and mean spirit. The article complained of being written by the editor, and he being as President of the Royal College of Veterinary Surgeons the nominal head of the veterinary profession, it behoves him to be circumspect, and not mercilessly treat his professional brethren; nor to set a pernicious example, by encouraging a spiteful and despicable spirit, which he apparently exemplifies, with much grandiloquence, simply because he failed so egregiously in his attempt to convince the magistrates that the view he had taken of the case was the correct one. Not content with having had a full opportunity of giving his opinions to the Bench, who dismissed the case, he must, forsooth, being it up again, by having recourse to, and calling into requisition the pages of his own journal to bolster up his condemned and dismissed opinion. He must have felt himself humiliated and beaten, or he would never have shown such bad taste as to have resorted to such a questionable and indecorous method.

When it is remembered that Dr. Fleming, Mr. Trigger, and Mr. Hodgkins admitted in their evidence that they had never once performed the operation of unsoling the horse's foot in their lives; that they had never once seen the operation performed; that they had had no experience, and had no knowledge whatever of it, is it not strange in the face of this admission of their utter ignorance of the subject, that one of them should characterise it as a horribly painful operation, and assert that the horse would be in horrible pain for days after, &c. The other two veterinary surgeons, equally without knowledge, endorsed what he said. I may here remark the horse has never had contracted tendons, sprained tendons, nor sprained fetlock in the slightest degree; even their saying so failed to make it so. If these eminent, scientific, and humane veterinary surgeons had only had one-hundredth part of the experience I have had in these cases, they would have been ashamed of themselves to have given such evidence. Had they known anything at all about it, they would have been able to see the utterly absurd, unjust, and biased statements they made. But, "where ignorance is bliss 'tis folly to be wise." Had they been wise they would have convinced themselves and got to know something about it before they opened their mouths. They would have done as Mr. Greaves did a long time ago—viz. when the idea was on

his mind that the operation was an exceedingly painful one—so much so indeed that he determined he would be no party to it for he apprehended that the horse must be nursing his foot, and experiencing great suffering for weeks by being unable to put his foot to the ground—he found on investigation that he was entirely mistaken; that the idea was altogether a fallacious one; that much of it was sentimental and imaginative. They would have found, as he had done, to their great astonishment, that the horse did not experience a tithe of the pain during the operation that they had imagined he must, and that after the horse is let up, he at once lays his whole weight upon the foot, and walks upon it as if no such operation had been performed, and that there was only a little nursing of the foot afterwards. This they would have known if they had known anything at all about it; but from their evidence it was obvious they did not, and consequently they could get no notion into their heads but the wrong one. "There are none so ignorant as those who will not learn." I have as sensitive a nature, and am as humane and feeling as any of the four men who tried to get me convicted. I have operated upon scores, perhaps hundreds, of cases, since I got my diploma fifty-three years ago; and I can conscientiously say that not in a single instance have I operated only when I have had a full conviction and a clear perception that the operation was necessary, and that the pain I was inflicting was for the purpose of relieving greater suffering pain and making the animal more useful. Therefore I am acquitted of cruelty by Dr. Fleming's own showing—from his own definition of what cruelty is; and this horse, which has done a deal of work this last month, and goes perfectly sound on the turf, along with scores of others I could name, is restored from being a useless and hopeless animal to usefulness and soundness. Scores of my employers will verify this fact if needs be. This is the way I have acquired the "unenviable notoriety" alluded to in the editorial, *of which I have so great a cause to complain.* Mr. Greaves, in his evidence, stated that it was a necessary professional operation; he had performed it forty or fifty times for canker, and twice for contracted feet, with almost invariable success; that he had never performed the operation for contracted tendons, ring bone, or side bone; but he could conceive it might be beneficial for side bone, in this manner: when the sole is removed the bond of connexion at the heels and quarters of the wall on the ground surface no longer exists; and when the weight of the horse is thrown on that foot, the heels descend, and for want of the bond of connexion the foot spreads out, or expands. At the end of a week or a fortnight it is quite surprising the extent of the expansion. The new horny sole grows stronger and thicker than the one removed,

for it has to fill up a wider space by three-quarters of an inch than the old sole. As it grows it fixes permanently the quarters and the heels of the wall in the wider shape and size.

By this means it naturally relieves the binding tightness of the hoof upon the tumified and ossified lateral cartilages; in fact, it adapts the wall to the altered condition produced by the side bones, and gives ease and comfort, just as the pressure of a tight boot made of strong thick leather taken from off a corn gives relief to the corn.

If Dr. Fleming, with all his genius and sophistry, can refute this hypothesis, let him do so at once, or for ever hold his peace. Possibly he may evince as much experience and erudition as he displayed in trying to prove its cruelty. I can compare the position of these three veterinary surgeons to a certain scientist, who, being anxious to prove his case, illustrated it in the following manner: "Supposing a spider is inside a clock case. When I wind up the clock the spider will think there is an earthquake going on." When all of a sudden a man amongst the audience, possessing some of that rare article "common sense," which scientists sometimes lack, jumped up and in a loud voice asked, "*How do you know what the spider would be thinking?*" The scientist floundered about; but it was evident he was shot in the wing, for he at once collapsed. The question was asked on the occasion, and I ask myself the question on this occasion, "Which has the long ears now?"

[In our publication of the report of this case in our July number, we abstained from making any comments upon it, preferring to let the facts speak for themselves. A good cause needs no defence, and a bad one cannot be improved by it.

Since Mr. Walters has seen fit to defend his position by complaining of the evidence of other veterinary surgeons, and also of comments made in another journal, we wish he had done this in a less censorious spirit—one in fact which would be more in consonance with the discussion of a professional subject.—Eds.]

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## MORE ELOQUENT THAN WORDS.

By A Secretary.

Sirs,—The following statistics may be of assistance to those who desire the Apprenticeship Clause to become law. Out of a certain number of students who presented themselves last month for the final examination of the Royal College of Veterinary Surgeons—

58·83 per cent. had served a period of pupilage apprenticeships.

41·17 per cent. had not served such pupilage.

10 per cent. of those who had served passed their examination.

90 per cent. were rejected.

57·14 per cent. of those who did not serve passed.

42·86 per cent. were rejected.

75 per cent of the rejected men had served, the remaining 25 had not.

Thus showing—

I. That the majority of students who join college have served a pupilage.

II. That pupils do worse in the final examination than the "simply theoretical students."

I remain, sirs,

Your obedient servant.

*To the Editors of the 'Veterinarian.'*

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## Pathological Contributions.

### CATTLE PLAGUE.

According to the latest information this disease still prevails in Russia and Poland, in the following Provinces: Bessarabia, Volhynia, Ekaterinoslav, Petrokoff, Podolia, Taurida, Kherson, and Radom.

According to the *Irish Farmers' Gazette* of August 18th, foot-and-mouth disease, notwithstanding the efforts of the Privy Council and the Veterinary Department to check it, is rapidly spreading. There have never been this year so many outbreaks in Ireland as within the last ten days.

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### PLEURO-PNEUMONIA.

This disease is reported to be increasing in Staten Island, United States.

The reports from the Netherlands respecting Pleuro-Pneumonia are very satisfactory, the only symptoms of the disease

being found in animals in Spœling district after a *post-mortem* examination.

## FOOT-AND-MOUTH DISEASE.

The last fortnight has seen a rapid extension of this disease in several parts of England, numerous outbreaks have occurred in the Midland Counties, it has appeared again in Northumberland and Cumberland, it has also appeared in Wales, the disease has increased in several of the counties in Ireland, and some of the outbreaks in this country are stated to be due to the importation of diseased stock from that country.

# Facts and Observations.

Remarkable Destruction of Horses by Lightning.—The *Petersburger Zeitung* reports the destructive action of a flash of lightning, which struck the stable attached to the cavalry officers' school at Krasnoje-Selo, killing sixteen horses on the spot. The electric fluid, on striking the corner of the building, seems to have travelled along the iron with which the racks were covered, and set all the hay on fire at once. The horses all fell to the ground. Most of them rose again quickly, but sixteen were found to be dead, and two were quite deaf. In all the horses that were killed the electric fluid seems to have entered at the head or neck, passing down through the fore-feet. The killed horses were not altogether or in adjoining stalls, but were scattered up and down the stable, justifying the presumption that their death was caused by their coming into contact with the metallic covering of the racks. The horses who survived were most probably not in contact with the metal at the moment when it was being traversed by the electric fluid.

Yellow Fever.—A series of investigations into the origin of this pestilent fever have just been made by Dr. Domingas Frieze, a Brazilian physician. Dr. Frieze has discovered that the blood of the patient contains a parasite which appears as a minute point, and in one form or another continues in existence after the death of the patient. This fact being satisfactorily established, he recommends that the

body should be burnt. By experiment, it was shown that the injection of a little of the tainted blood into the veins of a rabbit caused death in 15 minutes. Although this might only seem like ordinary blood poisoning, it was remarkable that all the blood of the dead rabbit was filled with the peculiar organisms. Moreover, a guinea-pig, kept closely upon earth taken from a yellow-fever cemetery, died in five days, and the same peculiarity also appeared in its blood, and from this the experimenter argues that all such burying places are constantly liable to distribute the disease. The most important result of Dr. Frieze's investigations is that a parasite peculiar to yellow fever undoubtedly exists. With this for the medical faculty to work upon, there is at least the hope of curbing and controlling the disease.

Riding as a Preventive of Hæmorrhoids.—In the *New York Med. Record* Dr. Bodenhamer writes favorably of horseback exercise as a potent preventive and curative agent for hæmorrhoids, especially internal. He also refers to a gymnastic exercise practised in Bethune Hospital with success. "It consists simply in trying to touch the toes with the fingers without bending the knees. This movement, though difficult at first, soon becomes easy. It not only strengthens and develops the muscles of the abdomen, but also those of the legs and thighs."—*Phil. Med. Times.*

Fasting in Acute Rheumatism.—Dr. Wood, Professor of Chemistry in the Medical Department of Bishop's College, Montreal, reports in the *Canada Medical Record* a number of cases in which acute articular rheumatism was cured by fasting, usually from four to eight days. In no case was it necessary to fast more than ten days. Less positive results were obtained in cases of chronic rheumatism. The patients were allowed to drink freely of cold water, or lemonade in moderate quantities, if they preferred. No medicines were given. Dr. Wood says that from the quick and almost invariably good results obtained by simple abstinence from food in more than forty cases in his own practice he is inclined to believe that rheumatism is, after all, only a phase of indigestion, to be cured by giving complete and continued rest to all the viscera.—*The Australasian Medical Gazette.*

American Lard.—In the course of a dispute between the Chicago dealers in lard, it has been incidentally disclosed that most American lard is adulterated from 10 to 100 per cent. with oleomargarine, stearine, cotton-seed oil, tallow, and terra alba. A revelation this for the British consumer!

# THE VETERINARIAN, SEPTEMBER 1, 1883.

Ne quid falsi dicere audeat, ne quid veri non audeat.—CICERO.

## THE INTERNATIONAL VETERINARY CONGRESS.

ON September the 10th the delegates from various countries will assemble at Brussels to hold the fourth session of the Congress which commenced its proceedings at Hamburg more than twenty years ago. The place of meeting is within a short day's journey for most of the members of our profession in this country, and the subjects to be discussed are of the utmost importance; besides which there are to be considered the social and political advantages which are likely to arise from the reunion of veterinarians of different nationalities holding different views on the subjects with which they are chiefly concerned. On these grounds we may venture to suggest that the autumn holiday, which the hard-worked practitioner may fairly claim, might in part be spent in a visit to Brussels.

In the event of a sufficient number of English veterinarians assembling to form a really representative body at the Conference, it might be possible to arrange that the next meeting of the Congress should be held in London. Meetings have already taken place in Hamburgh, 1862; Vienna in 1865; and in Zurich in 1867. The fourth Session is to be held after a long interval at Brussels, and the fifth might well take place in the course say of three years or less, if the circumstances are favourable, in England. At any rate, something would be gained by the passing of a resolution to the effect that the fifth session of the International Congress shall be held in London.

As the great centre to which foreign produce is determined in the course of trade, England is quite as much concerned as are the exporting countries in the establishment and maintenance of equitable and effective sanitary laws of international significance. Under the present circumstances,

as the authors of the paper on "The Organisation of a Veterinary Service," which is to be read at the Congress, remark: "In the place of a mutual confidence between nations we have established a continual and reciprocal—a too-ready disposition, to obstruct commercial relations, without remembering that such an obstructive policy naturally leads to fraud." "Sanitary laws at present are framed in the exclusive interests of the countries which dictate them, without regard to international trade."

This statement of some patent facts, it may be observed, does not include any suggestion for a remedy; but that point, and points of equal importance, will be exhaustively discussed at the meeting, and in such matters the English Veterinarian ought to have an influential voice.

Hitherto it cannot be questioned that English Veterinary Science has adopted an attitude of complete isolation. Even in regard to Continental Veterinary Literature we have hardly taken the trouble to inquire if there were any facts known to French and German veterinarians which we have not yet worked out for ourselves, and on more than one important occasion we have committed the absurdity of engaging in costly experiments which have resulted in proving a point which had been clearly established on the Continent years before. Life is too short for such a waste of energy, and the time has come when English Veterinary Science may retrieve most of its blunders by friendly alliance with the Veterinarians of Continental Europe.

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## AGRICULTURAL DEPARTMENT.

We are authorised to state that the title of the Veterinary Department has been changed to that of the Agricultural Department of the Privy Council. The offices are still at 44, Parliament Street.

# PREVALENCE OF CONTAGIOUS DISEASES AMONGST ANIMALS IN IRELAND.

## REPORT BY BAILIE FARQUHAR AND PROFESSOR M'CALL UNDER REMIT TO THEM BY THE LORD PROVOST AND MAGISTRATES OF THE CITY OF GLASGOW TO VISIT IRELAND AND REPORT AS TO THE CONDITION OF THAT COUNTRY AS REGARDS THE PREVALENCE OF CONTAGIOUS DISEASES AMONG ANIMALS, AND THE MEASURES WHICH SHOULD BE ADOPTED TO PREVENT THE IMPORTATION OF THESE DISEASES INTO SCOTLAND.

Glasgow; 17*th August*, 1883.

*To the* Local Authority
of the City of Glasgow.

Gentlemen,—As arranged at the meeting of the Local Authority held on the 31st ult., we have visited Ireland; and, having inspected Dublin, and the principal towns exporting cattle to Scotland, we now beg to submit the following particulars for the information and guidance of the Local Authority of Glasgow:

### Foot-and-Mouth Disease.

This disease is very prevalent and wide-spread, and involves the counties of Dublin, Louth, Meath, Westmeath, Roscommon, and the unions of Balrothery, Ardee, Drogheda, Dundalk, Dunshaughlin, Kells, Navan, Old Castle, Trim, Delvin, Mullingar, and Castlerea. The number of animals attacked and reported during the week ending 28th July was 1337, and for the week ending 4th August, 1829. The disease is rapidly on the increase—upwards of forty new centres of infection having been reported to the Privy Council the day we left Dublin. The disease has now made its appearance in County Antrim, and in the neighbourhood of Belfast.

### Pleuro-Pneumonia Epizootica.

This disease is also much more prevalent in Ireland than in Scotland, and involves the counties of Antrim, Londonderry, Dublin, Kildare, Louth, Meath, King's, Wexford, and Galway.

### Pig Typhoid, or Swine Fever.

This disease is more or less spread over the whole of

Ireland, involving the counties of Donegal, Londonderry, Monaghan, Cork, Kerry, Limerick, Tipperary, Carlow, Kildare, King's, Longford, Louth, Meath, Wexford, Kilkenny, and Queen's.

These facts prove that Ireland, to a large extent, is an infected country, and worse still, that the principal areas of infection involve the ports and surrounding districts from which we draw, directly or indirectly, our supplies of Irish live stock.

### Dublin Cattle Market.

This market is a new erection, and in our opinion a model one. We inspected it before and during the continuance of the market, and for cleanliness and order it leaves nothing to be desired. The floors and passages are smooth, impervious to water, have a fall to drains, and hydrants are so placed that with facility and little manual labour the whole market can be flushed and made perfectly clean, and this practice is adopted after each day's market has closed.

We also inspected the Old Dublin Market, which has been closed for some time by order of the Privy Council, and we understand will remain closed until the Local Authority comply with the Privy Council's demands as regards the formation of the floor, and the laying on of water to cleanse it.

### Cattle Sheds at North Wall.

These we also inspected, and found them in a highly satisfactory state. They are all private property, and belong either to a steamship line or a railway company. They are for the sole purpose of housing cattle, pigs, &c., until they are inspected, and the steamer is ready to take them on board. This arrangement was the outcome of the following order:

"The Lord-Lieutenant, pursuant to the power conferred upon him by an Order in Council, dated the 18th day of September, 1878, and made under the provisions of the Contagious Diseases (Animals) Act, 1878, and entituled the Portal Inspection (Ireland) Order of 1878, hereby directs that the inspections of animals intended for exportation from the Port of Dublin, under the provisions of the said Order, shall be made either in a suitable yard or other enclosed place to be provided by any person interested in the exportation of the said animals, or in the premises known as 14, Pitt Street, in the City of Dublin; and that

no such inspections shall be made in any public road or other public thoroughfare.

"Dated the 1st Day of December, 1879.

"By His Grace's Command,

(Signed) "T. H. BURKE."

The veterinary inspections can only take place "between the hours of sunrise and sunset," and this order applies to the whole of Ireland.

### CATTLE LAIRS AND SHEDS THE PROPERTY OF CATTLE SALESMEN.

These are licensed by the Local Authority, but the license is not granted unless the floors are impervious to water and hydrants are used. We visited several licensed sheds, and found them in perfect order. We also visited sheds which had been closed by order of the Local Authority, and other places which will be closed on 1st December, unless the alterations stipulated by the Local Authority are carried out.

### CORK.

The cattle sheds at the Port of Cork are also under strict veterinary surveillance, and we found them in a most satisfactory condition, special care being given to cleanliness, and each lair disinfected before a new lot of cattle is permitted to enter.

### BELFAST.

Cattle sheds as yet have not been provided by the steamship proprietors at this port, which we think is a great misfortune.

The animals to be shipped to Scotland or England are taken to the cattle market for inspection, and, having passed the ordeal, are driven through the streets to the quay. This is, in our opinion, a most reprehensible practice for two principal reasons: if the market is, or becomes, an infected place, and the animals to be inspected are sound when they enter it, they come out carrying the infection; and, on the other hand, if the market be free of infection, and the animals to be inspected are tainted, they carry the infection into the market and there leave it.

### DUNDALK.

At this port some of the cattle sheds belong to the steamship proprietors, and some do not, but they are all

defective, and the floors not being impervious to water, cannot be cleansed and disinfected so as to destroy infection.

The system of veterinary inspection is similar to that pursued at other Irish ports, and in itself quite as satisfactory.

## Recommendations.

Before detailing these in their order, we think it due to ourselves to state that we entered on this inquiry and investigation with a strong bias not to interfere with the transit of animals from Ireland to Scotland, knowing as we do know, how many interests must suffer. But the centres of infection in the counties of Dublin, Meath, and Louth are so numerous, that any measure short of closing the Port of Glasgow against cattle coming from the Port of Dublin would be of no avail in preventing the spread of disease to our cattle. But would the closing of the Port of Dublin protect our cattle? When we left Dublin, on our return journey, we were hopeful it would; but the information we elicited at Dundalk, and more especially at Belfast, made us waver, and now that we have received information since our return to Scotland that "foot-and-mouth" disease has reached Belfast, we are forced to recommend—

*Firstly*—That all traffic in live cattle (horses excepted), sheep and pigs from Ireland to Glasgow, should be suspended for one month.

*Secondly*—That the Local Authorities of Greenock, Ardrossan, Ayr, and Stranraer should be urged to adopt the same measure.

*Thirdly*—That steamship proprietors engaged in the carrying of live-stock other than horses, from Ireland to Glasgow, should be called on to provide cattle lairs in the vicinity of the Broomielaw, similar to those provided at Dublin, and subject to similar regulations as regards cleansing and disinfection.

*Fourthly*—That such Irish cattle, sheep, and pigs as may afterwards be imported into Glasgow should be detained there for twelve hours, to rest, and undergo inspection.

*Fifthly*—That two inspections should be made during daylight—the first on entering the lairs, and the second before liberation.

*Sixthly*—That the Irish Privy Council should be requested to compel the steamship proprietors to provide cattle lairs at all the ports forwarding cattle to Scotland, similar to those provided at Dublin, and under the same regulations.

*Seventhly*—That the Local Authorities of Greenock, Ar-

drossan, Ayr, and Stranraer should be requested also to memorialise the Irish Privy Council upon this point.

*Eighthly*—That, until further notice, Irish cattle should not be allowed to enter the Burgh of Glasgow from the district of any Local Authority in Scotland unless accompanied by a declaration and veterinary certificate certifying that the animals are sound, and that they have been in the possession of the proprietor for fourteen days, and have not been exposed in a public market or sale yard during that period of time.

*Ninthly*—That, until further notice, no animal should be removed into the Burgh of Glasgow from the counties of Midlothian, Lanark, Renfrew, Stirling, and Perth, and the Burghs of Edinburgh, Perth, Greenock, Ardrossan, Ayr, and Stranraer.

*Tenthly*—That the attention of the Irish Privy Council should be drawn to the prevalence in Ireland of foot-and-mouth disease, pleuro-pneumonia and swine fever, and the introduction of these diseases into Glasgow from the Port of Dublin, &c.

*Eleventhly*—That the attention of the Privy Council, Westminster, should be drawn to the prevalence of foot-and-mouth disease, pleuro-pneumonia, and swine fever in Ireland, and that they be requested to prohibit the importation of Irish cattle into Scotland. Their attention should also be drawn to Suggestions Nos. 3, 4, 5 and 6.

*Twelfthly*—That the Irish Veterinary Department should be requested to furnish the Inspector to the Local Authority of Glasgow with a copy of their weekly return of the locality and numbers of places in Ireland upon which contagious or infectious diseases have been reported to exist.

In conclusion, we found the authorities at Dublin and the veterinary inspectors at the various ports very desirous to facilitate the object of our visit, and to furnish us with all information.

JOHN FARQUHAR.
JAMES M'CALL.

## Extracts from British and Foreign Journals.

### BRITISH MEDICAL ASSOCIATION—ON THE AUTONOMOUS LIFE OF THE SPECIFIC INFECTIONS.

We extract the following important observations "On the Autonomous Life of the specific infections," from an address delivered by Dr. Charles Creighton, at the Liverpool meeting of the British Medical Association. We cannot, however, say that the theory advanced by Dr. Creighton is one which we should readily indorse with regard to tuberculosis in cattle or other infectious diseases. Nevertheless the whole address will amply repay a close reading by the members of the veterinary profession, as it teems with pathological views of deep thought and erudition.

#### "On the Autonomous Life of the Specific Infections.

"Mr. President and Gentlemen,—I have unusually good reasons for prefacing my address with an apology. I cannot claim to speak from the fulness of experience, which has given so much value and distinction to the addresses that have been delivered before the Association; and I have a subject assigned to me which demands experience and a mature judgment in no ordinary degree. Pathology is a growing science, its aspects are constantly changing, a single year's work brings us a multitude of new and often puzzling facts; and although the issues are of the most momentous kind, not even the wisest and most judicial minds in the profession can always see their way to a clear and definite opinion.

"But, amidst all this uncertainty, there is one central and guiding principle in the doctrine of disease which we may hold fast to. It is the physiological principle, or the idea that diseased states of the body are but modifications of healthy states, deviations from the beaten track, perturbations of the normal life, shortcomings of the physiological standard. Thus, even in so formidable a malady as diabetes we are still within sight of the line of health; there may be a physiological glycosuria; and that fact, as Dr. Bence Jones says, proves to us that the disease is only a little way distant from health. 'Here as elsewhere,' says that eminent chemist and pathologist, 'there is no definite limit where

health ends and disease begins.' To find the proper physiological analogies for diseased processes is the task of modern pathology; and I do not think that there is, in the whole range of science, any better kind of intellectual exercise than to expose the working of the ordinary laws of structure and function under the mask of disease. The physiological idea is, indeed, the hope and inspiration of pathological science, as it is also of medical practice. But there is no reason why I should attempt to say again what has so often been well said before. Members of the Association who heard Professor Michael Foster, at the Cambridge meeting, discourse on the 'Relations of Physiology to Pathology," will not have forgotten how he proved that the difference between these two sciences was merely a superficial difference, whether as regarded method or subject-matter. We shall, most of us, also recall Professor Huxley's lucid exposition before the International Medical Congress, of the 'Connection of the Biological Sciences with Medicine,' wherein he showed that pathology was that branch of biology which concerned itself with perturbations of the normal life.

"That view of pathology is one that we all share; and as I have endeavoured, according to my opportunities, to work out physiological analogies of disease in particular instances, I shall not be suspected of any want of sympathy with the general principle. But I am none the less confronted with the difficulty that a great deal of pathology appears to be quite different in kind from any physiology known to us. What are the physiological analogies of the infective and constitutional diseases, and how large a part of pathology do the diseases of that class stand for?

"There is, I believe, a serious difficulty here, and a difficulty that made itself felt in the very first system of physiological medicine that was given to the world. Broussais was the author of the first attempt at a physiological scheme of disease; and it was only a year or two ago that Professor Charcot was claiming for his brilliant countryman the credit of having broken down the dualism of health and disease, and of having eradicated that old and pernicious habit of regarding disease as a separate entity. But Professor Charcot said nothing of the rock on which Broussais is generally accounted to have made shipwreck. The author of the first physiological medicine was thorough-going, and it was because he endeavoured to be comprehensive and consistent that he failed. He left out no great disease from his physiological scheme, not even typhus nor Asiatic cholera;

they were all perturbations of the normal life, and a good many of them were forms of gastro-enteritis. Professor Charcot may be right in claiming the physiological medicine of Broussais as the example for all subsequent times; but it is quite certain that it served also as a warning to those who next took the physiological medicine in hand. They were careful to lighten the ship by throwing overboard Asiatic cholera, typhus fever, and, in fact, the whole of the acute and chronic infections. Just about the time when the thorough-going system of Broussais had provoked the inevitable reaction, Professor Henle had made his suggestion about minute parasitic organisms being the causes of the specific infective diseases; and it is curious to read, at a distance of forty years, in the first volume of the German *Archives of Physiological Medicine* (p. 88), how Griesinger, one of its sponsors, promptly availed himself of the parasitic hypothesis of Henle in order to account for all those diseases which had been prudently omitted from the physiological programme.

"But I venture to say that, when we congratulate ourselves upon the physiological basis of pathology, we do not always reflect how much of disease is thus excluded from the class of disturbed physiological processes, and how small a fraction remains to fill the physiological categories. There are several passages in Sydenham's works in which he gives his estimate of the proportion that the species of disease—the *morbi typo induti*—bear to the rest; he estimates diseases of a specific type at two thirds of the whole; and it will be admitted, I think, when we look abroad as well as at home, and when we read history as well as contemporary records, that this estimate shows his fairness of mind and his sense of proportion.

"The serious difficulty, then, which I spoke of—the difficulty that must have been present to the mind of Broussais, and must occur more or less to everyone—is that a physiological medicine, which leaves out the larger and more formidable half of disease, is hardly worthy of the name. The doctrine that morbid processes are after all merely perturbations of normal processes, or, as Hunter said, 'a perversion of the natural actions of the animal economy,' is the great principle of scientific pathology; but we shall have to speak less enthusiastically of it, if it should appear that it has no place for the long list of infective diseases—for plague, for cholera, for yellow fever, for typhus, for smallpox, for leprosy, for syphilis, for cancer, for consumption. If the physiological idea is to be good for anything, it ought to be

good for those; for they are the real difficulties of pathological science, and the real *opprobria* of the medical art.

"I am sanguine enough to believe that the physiological doctrine will one day be shown to be as large in its application as it is rational and hopeful in its spirit. It is for that reason that I have decided to use this public opportunity that has come to me—and come to me most unexpectedly, and, I feel, most undeservedly—in order to speak of certain aspects of the specific infections, which are perhaps not the aspects most commonly brought before us at present. One would wish to think of these diseases, strange and terrible though they be, as still joined in continuity with the common disorders of structure and function; and I am accustomed to express for myself this connection by a formula, which has no other value than belongs to a mode of thought or a form of words, but may still serve as a convenient or empirical standing ground for those who seek to observe a certain unity and sequence in their study of disease.

"I shall endeavour, then, to discover some relation between common aberrations of structure and function and the specific infections, or a relation between disordered states of the body and the self-existent species of disease; and I shall make this attempt with two or three representative instances.

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"If cancer has always been the great popular instance of a disease enjoying a kind of life of its own within the body, consumption hardly yields to it in its relentlessness, and it far exceeds it in its prevalence. Is it possible, in the case of consumption, to show that a wasting infection has arisen out of common disturbances of the physiological life? Before so critical an audience, I shall not have the hardihood to speak of consumption in general—of the disease about which so great masters in pathology as Laennec and Virchow have differed widely. But there is a form of tubercle, the bovine form, in which the facts are much less ambiguous, and much easier to deal with, and, as it happens, more familiar to myself; and for bovine tubercle, or, as it is sometimes called, the pearl-disease, I shall venture to inquire whether the small beginnings of it may not be found in a certain kind of disturbance of ruminant nutrition, just as we find the pre-cancerous stage of cancer in certain irregularities of the apparatus and process of secretion. Those beginnings would correspond to what I have called the pre-autonomous stage; while the autonomous life of the disease,

as a semi-independent thing, would be shown in its infectiveness.

"Bovine tubercle is a more complete example of infection than cancer. It is a constitutional disease pervading the whole body; it is likely to end in wasting and cachexia; it is very liable to be inherited by the offspring; it can be given to other animals, by inoculation or by feeding, in experiments, and probably also by accident; and there are recorded cases in veterinary practice, which lead us to think that it hangs about a stall, or spreads from stall to stall by volatile contagion. There is, in fact, no disease, in human or veterinary pathology that shows a more complete autonomy; it is constitutional, hereditary, infective, and contagious.

"The pearl-disease is peculiarly a ruminant malady, and it is curiously limited within the ruminant order itself. It does not occur in the sheep, nor, as far as we know, in the deer; and by far the larger number of cases are found in the domesticated bovine species, in which it is, indeed, much too common. I have been on the outlook for specimens of it among the animals that die in the Zoological Gardens in London, and my experience hitherto has been curious and suggestive. I have hitherto found the peculiar anatomical characters of this form of tubercle in only three species: the eland, a large South African antelope, like a cow; the nilghau, a large Indian antelope, whose name means, 'the blue cow;' and the prong-horned antelope from America, another of those half-way animals between the bovines and the antelopes, which the late Mr. Forbes, the Prosector at the Zoological Gardens, took much interest in as a transition species. It is certainly a remarkable thing that those antelopes, which resemble the bovines so closely in zoological characters, should resemble them also in their liability, under confinement, to a distinctive kind of new formation. This kind of tubercle is not only an affair of the ruminant order, but it is an affair of a small group of ruminants, mostly belonging to one genus.

"What, then, are the distinctive anatomical characters of this distinctively ruminant disease? The morbid anatomy of bovine tuberculosis has been written with as little reference to theory or preconceived opinion as could be wished. It has been, in great part, observed by those whose business lies with cattle; and the popular names of the disease in all countries will show us how it has presented itself to the common observer. The various names show that it is primarily an affection of the serous membranes; the Germans

have called it the 'pearl-disease,' from the rounded whitish nodules attached to the abdominal and thoracic surfaces; the French have named it 'pommelière,' from a fancied resemblance of the nodules to clusters of potatoes; in England, it has been called 'the grapes;' and in Scotland, 'angle-berries.' I am merely repeating the language of all authorities, including Professor Virchow, when I say that the disease is primarily one of the serous membranes—a growth of multiple nodules, usually small and flattened, often suspended by a stalk, and sometimes as large as a cherry or an apple. These are the beginnings of the disease; but it extends from the serous membranes, by infection, to the lymphatic glands, which become changed into the same mortar-like substance that is found in the degenerated nodules. The lungs also are very apt to get infected, as they so often do with new formations of a sarcomatous nature; and the infection may, in the end, reach most of the organs, as well as the bones and joints, causing the animal to die of general cachexia and wasting.

"Such is the usual sequence of events where the disease is originally acquired; but in the cases of inheritance—and these are now estimated at more than one half—there may be some departure from this order; in them, the formations in the lymphatic glands, lungs, and other viscera, may be more conspicuous than the serous membrane nodules; but even in the inherited disease, the pleural or peritoneal surfaces will usually show characteristic traces of the primary new formation. Some allowance must be made for certain modifications in the order and distribution of the disease, when it is communicated directly to the offspring by a sire or dame which had acquired it; and it is all the more necessary to be clear on this point, since, at the present day, the hereditary taint would seem to be so widely distributed throughout the bovine stock as to obscure somewhat the original characters of the disease. In what I have to say, I must speak of the disease as it is primarily acquired, and as it is described in the earliest writings, and by its popular names.

"It starts then as a multiple nodular condition of the abdominal and thoracic serous surfaces, it acquires the character of a constitutional disease, it goes all through the body, it passes directly to the offspring, it may be inoculated upon healthy animals or communicated to them by feeding, and it is not improbable that it passes by volatile contagion. The infectiveness within the original body, and the faculty of passing to other animals, is what I would call its autono-

mous life, and I would look for its pre-autonomous stage in the peculiar groups of multiple nodules on the serous surfaces. What, then, is the origin of these nodules? In what relation do they stand to any known disorders of ruminant nutrition, or, rather, of the nutrition of those ruminants that are closely confined, artificially fed, and over milked.

"I am not aware that the suggestion which I have to make has occurred to anyone before, and I put it forward, therefore, with some diffidence. This suggestion arises out of a consideration of the forms and favourite seats of the nodules, and of their structure, and degenerations. One cannot help observing that these multiple nodules are especially apt to grow in the seats of fat formation, and to assume the external form of deposits of fat, either the stalked and pendulous form, or the flattened form of confluent lobules or patches. Now, the bovines are somewhat peculiar in the way in which they lay on fat. They have not so much of subcutaneous fat as the sheep or the pig, but they are very apt to have internal formations of adipose tissue, sometimes in situations where one would imagine that it could serve none of the ordinary purposes of fat. Besides the common deposits of fat about the abdominal organs and in the thorax, there may be lumpy masses of it even on the pleura covering the ribs, and on the diaphragm; and, in highly fed animals, it is not unusual to find a lobulated layer of the same tissue all over the surface of the spleen, and even on the surface of the liver. It can hardly escape us that those serous surfaces which are invaded in the course of this excessive fat-forming habit are just the localities where the pearl nodules are found. There is, indeed, one rather important exception to this rule, namely, the borders and surfaces of the lungs. I cannot say whether a border of fat ever occurs round the margins of the lungs in cattle as it occurs round the spleen and liver, or under the pulmonary pleura, as it is found under the costal pleura; but, if that should be the case, the analogy with the pearl-disease would be complete, so far as situation goes; otherwise, we must explain the nodule of the pulmonary pleura on the hypothesis of secondary infection. As regards form, the resemblance between the physiological and the pathological formations is most striking; in both cases we may find either a finely lobulated stratum of translucent tissue, or coarser lumpy masses, or pendulous nodules.

"But, after all, the diseased nodules of the serous membranes are not fat, or at all events, they are not composed of adipose tissue throughout most of their extent. They are

not multiple lipomata; but it would be strictly correct to describe them as multiple fibromata, or sarcomata with a deficient blood supply, or rather as a multiple tumour-formation containing a mixture of those two kinds of tissue, growing in the seats of fat-formation, and assuming the lobulated, or lumpy, or pendulous forms of the subserous fat.

"I do not think that I have gone beyond the facts in this statement of the naked-eye characters of the primary new growth to which the bovines are so liable, and I cannot help thinking that there must be some connection between them and vicissitudes in the nutrition of those animals as manifested in that tissue which would be most affected in nutrition, namely, the fat tissue. The facts may be explained in two ways, both of which may be applicable, although I would regard one of them as more probable than the other. Either the formations on the serous membranes are atrophied or degenerate masses of fat in which the blood-supply has failed to a great extent, or they are radically new growths which have sprung up in the old lines of fat-formation, or where fat may once have been. The description in a veterinary text-book of retrogressive changes in the multiple lipomata of the serous membranes, reads very much like a description of some of the bovine tubercles that we meet with; the oily contents of the fat-cells disappear, the connective-tissue hardens and thickens, calcareous matter is deposited, and a mortar-like substance takes the place of what once was fat. But there is another and perhaps better way of accounting for the fact that the morbid growths are found in some of the favourite seats of the internal fat and in its peculiar shapes. It is a well-known zoological characteristic of the bovines that their fat is naturally apt to come and go from time to time in the wild state, according to the periodicity of the seasons, and in the domesticated state, according to a multitude of artificial practices in the management of dairy and farm stock. Nothing can be more artificial, for example, than the conditions which cows in town dairies are subjected to; the close confinement. the unnatural feeding, and the excessive milking. It is quite conceivable that an animal, under those circumstances, and more especially when it is growing old, would depart from its natural fat-forming habit, and put on, instead, an embryonic kind of tissue, which is neither fat nor anything else of a physiological kind, although it occupies the old seats of adipose tissue, runs into the familiar mould, as it were, and grows to the old pattern.

"Whether we take the one explanation or the other, or the two together, there is, I think, a pretty strong chain of evidence that bovine tubercle begins as a disorder of nutrition. It is oftenest acquired by animals that are farthest removed from their natural conditions—by cows imprisoned in town dairies; and the disease that those animals are so peculiarly liable to begins as a kind of multiple morbid growth, which occupies the very seats of the internal fat and runs into its very shapes. Now, the abdominal and thoracic fat is precisely the tissue that might be expected to show the effects of malnutrition in the way of structural changes. The tubercles are simply collections of embryonic tissue in which the formation of blood-vessels has been inadequate, and in which degeneration has inevitably followed; and anyone who has studied the development of fat will readily admit that the same embryonic cells growing in the particular localities might have become fat-cells if the blood supply had been sufficient.

"Whether I have indicated truly or not the circumstances in which we should seek for the beginnings of this peculiar kind of new growth, I am confident, at least, that we must look for these beginnings in some physiological disorder or other within the small group of ruminants, and not elsewhere. Disordered nutrition appears to me to be able to account for this kind of multiple tumour disease, just as I believe that disordered secretion can account for the beginnings of cancer. Disordered nutrition shows itself in various ways within the body; but there is only one tissue that it specially affects, and that is the adipose tissue, just as the glandular tissue is the proper seat of secretory disturbances. In the one case as in the other, the disorder of function finds a structural expression; it acquires length, breadth, and thickness; or, in other words, it results in a tumour. The functional disease thus acquires the degree of individuality which may be ascribed to a tumour, and that must be the beginning of its life of semi-independence within the body. In both cases the pre-autonomous stage is a common disorder of structure and function—of secretion in the one case, and of nutrition in the other; and each goes on to acquire the mysterious power of infection. But they become autonomous in different ways, or under different circumstances. I have already spoken briefly of cancerous infectiveness, and I have elsewhere endeavoured to trace the connection between it and the antecedent glandular disturbances. In bovine tubercle, I should ascribe the infectiveness to the *multiplicity* of the primary nodules, and to the fact of

their being seated on the serous membranes, which are so fundamental a part of the lymphatic system. Multiple tumours of the serous membranes are favorably situated for infecting the lymphatic glands, and the infection of the lymphatic glands is only the beginning of an autonomous career. Professor Virchow has shown, in his great work on morbid growths, how the lobules of abdominal fat may become multiple stalked lipomata, each lobule becoming a kind of individual tumour, and growing as such; and he adds the following remarkable words: 'There is no doubt that this kind of multiplicity does not differ altogether from what we find in malignant tumours or in an infective dyscrasia.' And if that can be said of multiple lipomata still retaining the proper structure and nutrition of fat, it can be said, with even greater truth, of those multiple growths of the abdominal and thoracic surfaces which we have good reason for taking to be rather the degenerations or substitutes of the fat.

"There is one other point to be noted in connection with bovine tubercle. It may or may not be primarily due, as I have supposed, to an error of nutrition in the abdominal and thoracic deposits of fat, but its morphological characters are certainly peculiar, and they belong, in a sense, to the bovine organisation. If I may so speak, it has sprung out of bovine soil, and the marks of its bovine origin never quite leave it, even when it is set up in the bodies of animals widely removed from the ruminants. A mere condition or state of the ruminant body can be abstracted, as it were, from all other ruminant conditions, and made to live in another body; and that is an extreme instance of what is meant by the autonomous life of the specific infections, or of the semi-independent existence of the species of disease."

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## THE NATURAL HISTORY OF THE LIVER-FLUKE AND THE PREVENTION OF ROT.

By A. P. Thomas, M.A., F.L.S., Balliol College, Oxford; Professor of Natural Science in the University College, Auckland, New Zealand.

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(*Continued from p.* 557.)

The natural place for the further growth of the embryo is either in or near the lung of the snail. Once safely lodged in the suitable position, the embryo undergoes a great change

of form. It is now settling down to a sluggish parasitic life. It no longer needs the paddles to propel it through the water, and they are therefore thrown off. It no longer needs eyes to help it to find its way about, for it scarcely stirs in the snail, and so they get indistinct, and may at length be altogether lost. The form of the body is also changed, and, instead of being like a sugar-loaf in shape, it becomes oval.

Fig. 5 shows the animal whilst the change is taking place. Fig. 6 shows it as soon as the change is completed. We

Fig. 5

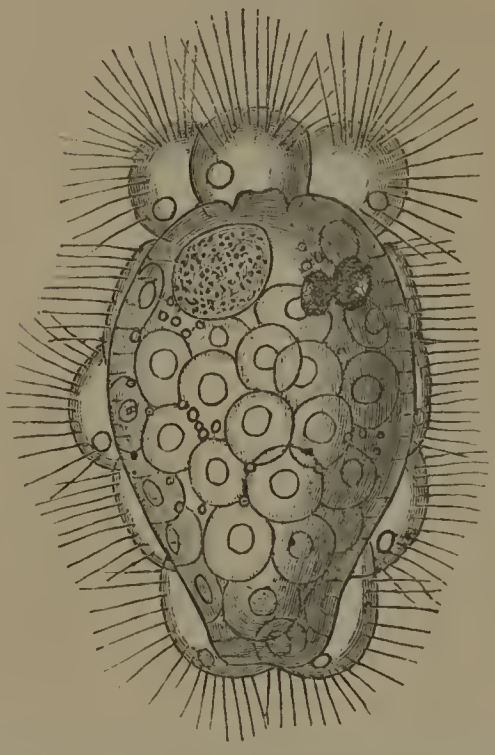


Fig. 6.

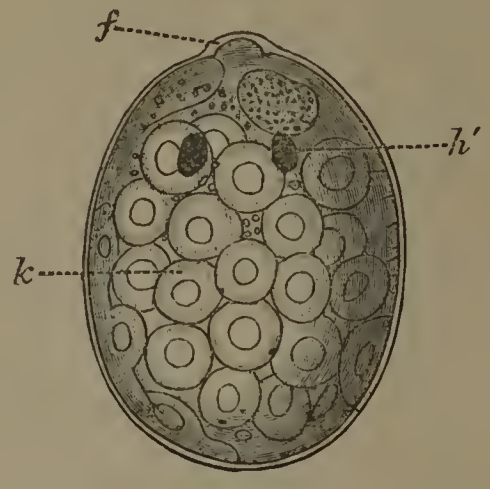



Fig. 5, on the left, shows the change of the embryo into sporocyst just after it has entered the snail. Fig. 6, on the right, shows a young sporocyst produced by the change of the embryo: *f*, boring-tool; *h'*, eye-spots disappearing; *k*, germinal cells. Magnified 500 times. (Original.—A. P. T.)

need a name by which to distinguish this first generation in the snail, and so will call it by its English name *sporocyst*, which simply means a bag of germs. This is literally what it becomes as it grows inside the snail, its host. It lives entirely at the expense of the juices of the snail, and the rapidity of its growth depends upon the warmth of the season. In ordinary July weather it will reach its full length of $\frac{1}{40}$ of an inch by the end of the first fortnight. In colder weather, however, growth is much slower; and in winter time very little progress is made, even in three or four months.

Fig. 8 shows a full-grown sporocyst; it contains about half-a-dozen germs of different sizes. They are round at first, then they get longer, and finally take the outward

shape of a sack. At the lower part of the figure is one which is just ready to hatch out, lying with its head directed downwards. This belongs to the second generation; it will be seen that it is different from the sporocyst, and it is called a *redia*, after the celebrated anatomist Redi. As soon as the young redia is ready to leave, it breaks its way through the wall of the parent; the wound formed by its forcing its way through immediately closes up, and the remaining germs continue to grow. In this way each sporocyst produces

Fig. 7.

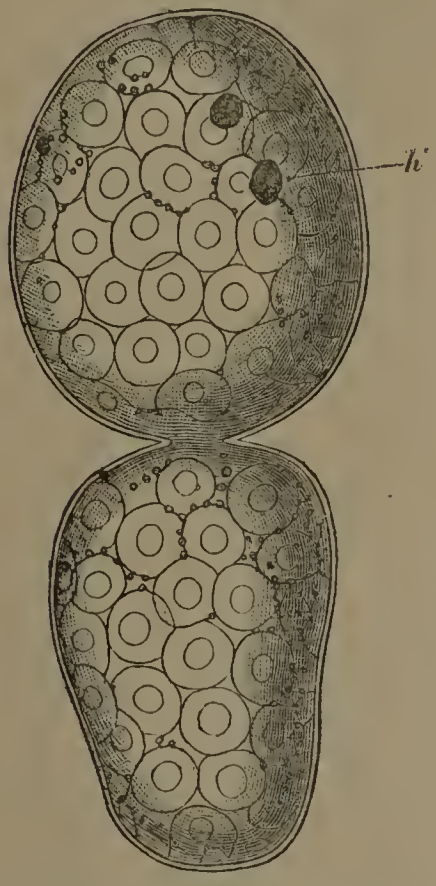



Fig. 7.—A young sporocyst dividing into two: *h'*, eye-spots disappearing. Magnified 500 times. (Original.—A. P. T.)

Fig. 8.

Fig. 8.—A full-grown sporocyst (the first generation) of the liver-fluke. It contains several germs in different stages of growth. The largest, at the lower end, has assumed the characters of a redia. Magnified 230 times. (Original.—A. P. T.)

about half a score of rediæ. But there is yet another way in which the sporocyst multiplies, namely, by the division of one sporocyst into two across the middle, as shown in Fig. 7.

Fig. 9.

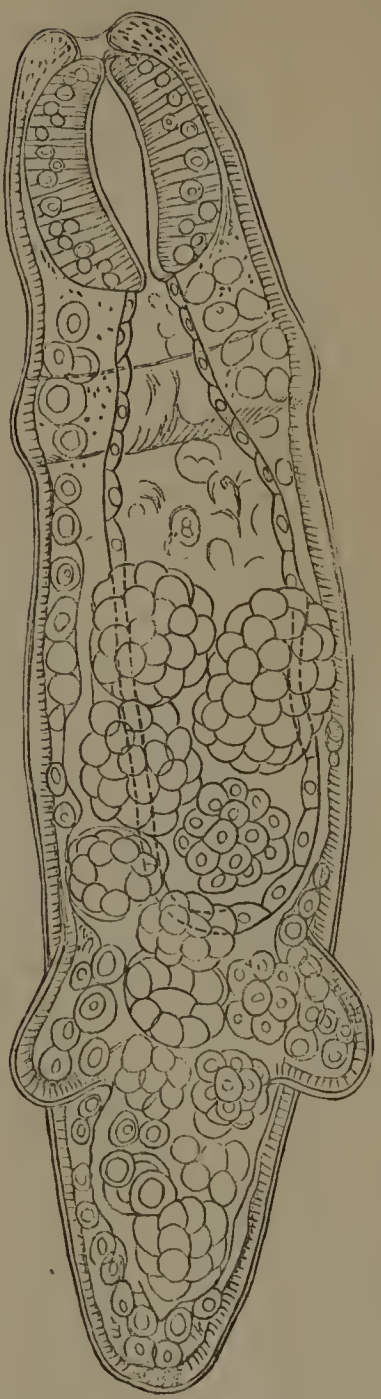


Fig. 10.

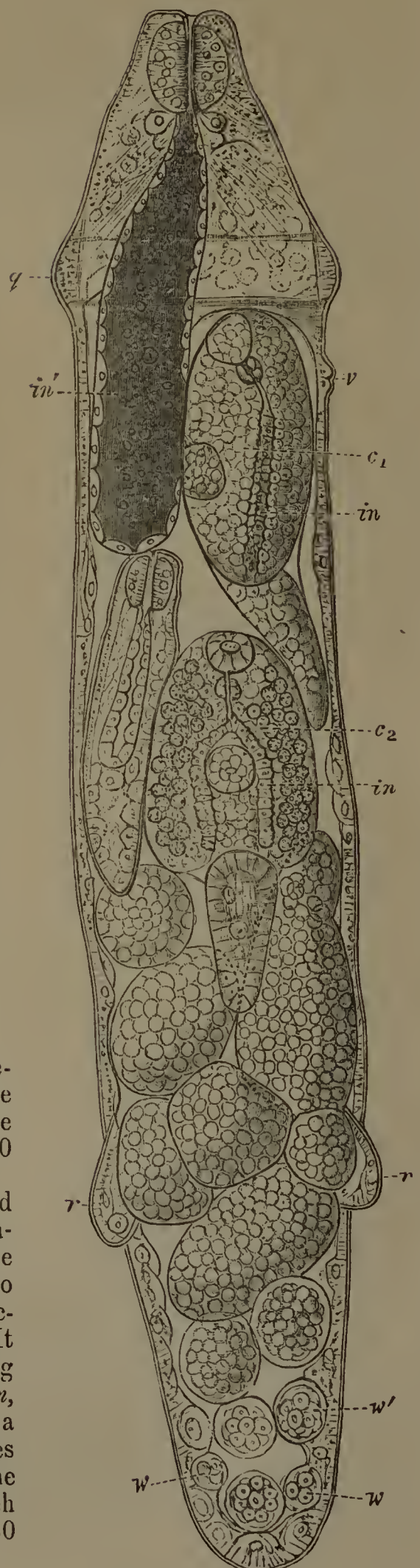



Fig. 9.—A young redia (second generation) of the liver-fluke, with the contents forming into germs of the third generation. Magnified 230 times. (Original.—A. P. T.)

Fig. 10.—A full-grown redia (second generation) of the liver-fluke. It contains a large number of germs of the third generation. Two of these are so far advanced that they show the characters of the tailed larva or cercaria. It contains also on the left hand a young redia. $c^1$ and $c^2$, the two cercariæ; *in*, intestine of cercaria; *w* $w^1$, germs in a very early stage; *r r*, the processes which serve as feet; $in^1$, the intestine of redia; *v*, the birth-opening by which the cercariæ leave. Magnified 120 times. (Original.—A. P. T.)

This is worthy of mention here, as it causes a still greater increase in the number of the parasites within the snail.

Let us return to the rediæ which compose the second generation. Figs. 9 and 10 show two free rediæ; the former is nearly half grown, and the latter is adult. The rediæ are much more active than their parents, and migrate from the lung into the other organs of the snail, and particularly into the liver, upon which they feed. A redia differs from a sporocyst, its parent, in several points. The most important difference is that the former has a mouth and an intestine (Fig. 10, *in'*) shaped like a bottle, whereas the sporocyst has none. Its habits are more active; towards its hind end are two short projections (Fig. 10, *r*), which serve as legs of a very simple kind, and prevent the animal from slipping backwards as it moves through the body of its host.

If an infected snail which has a clean and transparent shell be chosen, the rediæ may be watched by the aid of the microscope as they move inside the living snail.

In forcing their way through the body of the snail the parasites necessarily do a great deal of harm; so much indeed, that in my experiments in the laboratory I found very few snails live many weeks after infection. In fact, the fluke-disease is, in the laboratory at least, more destructive to the snail than it is to the sheep.

Within the redia are found germs, the third generation, which at first are very like those produced in the sporocyst. But later on we see that each germ becomes an animal shaped like a tadpole, with a flat oval body and long slender tail. This animal is usually called a *cercaria*, the name simply meaning that the animal has a tail.

An adult redia, such as is shown in Fig. 10, may grow to the length of $\frac{1}{16}$th of an inch. It contains about a score of germs in all the different stages of growth; there are usually two or three so far advanced that they have become tadpole-shaped and are ready to come forth. They escape from the parent by a special opening (*v*, Fig. 10), and then crawl or wriggle their way out of the snail.

Now these tadpole-like animals are destined to enter the sheep and there become true liver-flukes, and I shall have to show how they get inside it.

When the snails infested with the above-described forms of the liver-fluke are kept in an aquarium, the cercariæ or tadpole-shaped larvæ may occasionally be found swimming about in the water in a very lively manner. Fig. 11 shows a free cercaria as it appears when swimming. It

has a flat oval body about $\frac{1}{90}$ of an inch in length, with a tail more than twice as long. There are two suckers (*y* and *y'*) corresponding to those of the adult fluke, and at the sides

Fig. 11.

Fig. 11.—A free cercariæ (third generation) of the liver-fluke, as it is seen when swimming in the water: *y y*¹, the two suckers corresponding to the suckers of the adult fluke; *in*, intestine; *cy*, the rounded masses at the sides of the body which provide the material for the formation of the cyst or envelope. Magnified 160 times. (Original.—A. P. T.)

Fig. 12.

Fig. 12.—A cercaria in the act of forming its cyst or envelope. Magnified 165 times. (Original.—A. P. T.)

of the body are many granules arranged in rounded masses (*cy*).

The free-swimming life of the cercaria never seems to last long, for on coming in contact with the sides of the aquarium or the water-plants contained in it, the little animal soon comes to rest, draws its body up into a round ball, and exudes from the whole of its surface a gummy substance containing many granules (see Fig. 12), which are the same as those already described as forming masses at the sides of the body of the free cercaria. The tail meanwhile is wagged violently, and before long a more vigorous movement throws it off altogether. The gummy substance hardens on exposure, and the body of the cercaria is thus enclosed in an envelope which protects it from injury.

These envelopes are termed cysts (the word cyst meaning a bladder). They are snowy-white, and numbers of them may be found adhering to the walls of the aquarium in which the infected snails are kept, or attached to the dark-green leaves of the water-plants.

If the snails are crawling on the margin of a ditch or over a damp field, the cercariæ on leaving the snail at once proceed to form their envelopes or cysts at the bottom of the grass, and so attach themselves to the stalks, or leaves, near the roots.

Fig. 12 shows a cercaria in the act of forming its cyst, and Fig. 13, which is less highly magnified, shows three fully-formed cysts adhering to a portion of a grass-stalk. As even the latter figure is magnified to ten times the actual size of the object, the minute size of the cysts will be easily appreciated. They are really only one hundredth of an inch across.

These cysts are the form in which the liver-fluke is swallowed by the sheep, and the animals within them are young flukes. They remain adherent to the grass until the time comes when they are picked up by the sheep feeding on the ground. They may be compared to the pupæ or chrysalides of insects. It must, however, be remembered that whilst the perfect animals emerge from the chrysalides of insects of their own accord as soon as they are ready to do so, and live a free-winged existence, the animals will only come forth from the cysts of the liver-fluke when the grass or plant to which they were attached has been swallowed by some sheep or other suitable animal. If the cysts are not so swallowed within a few weeks, the young flukes which they contain will perish.

The number of cercariæ descended from a single fluke-egg

cannot be less than 200, and is sometimes much larger. For the rediæ forming the second generation, instead of producing cercariæ, may, and perhaps as a rule do, give rise to another generation of daughter rediæ resembling themselves, and these then produce cercariæ. When this is the case, a single fluke-egg may give rise to more than a thousand cer-

FIG. 13.—Three cysts of the liver-fluke attached to a portion of grass-stalk. Each cyst contains a young fluke, which remains quiet until the cysts are swallowed with the grass by a sheep when grazing. Magnified 10 times. (Original—W. H. J.)

cariæ. It will be seen, therefore, that not only does the race of the liver-fluke multiply and increase abundantly in the sheep by producing myriads of eggs, but that there is a further and great increase of the forms within the snail. If only the greatest degree of ordinary increase were reached, a single fluke might give rise to more than a hundred million descendants in the next generation of liver-flukes proper inhabiting the sheep. But, fortunately for farmers, the chances are enormously against any such disastrous increase.

*The habits of Limnæus truncatulus.*—The habits of the snail *Limnæus truncatulus,* which serves as an intermediate host, are of much importance, for they show how the snail is likely to become infected with the larval forms of the liver-fluke, and also how the cysts are distributed in places where they have a good chance of being picked up by the sheep.

*Limnæus truncatulus* (Figs. 19, 20, is a fresh-water snail, with a brown spiral shell; it is very common, and has a very wide distribution over the world. It is very

small, its shell never reaching more than half an inch in length, whilst it is usually much smaller; a common variety in England, scarcely ever measuring so much as a quarter of an inch. Owing to its small size it often escapes notice, or is taken for the young of some other kind of snail, so that it has no popular name. Two or three of the kinds of snails most closely allied to *L. truncatulus* (for instance *Limnæus pereger*) may occasionally crawl out of the water for short distances; but in *Limnæus truncatulus* itself, the habit is so much more strongly developed, that the snail should be termed amphibious. Indeed, it is oftener found out of the water than in it. When kept in an aquarium it quits the water, and as often as it is put back, insists on crawling out again, so long as the necessary strength remains. It is said to breed upon the mud on the banks of ditches. Although so common, it is often very difficult to find, no doubt owing to its minute size and its habit of wandering from the water.

As showing how much this snail lives out of the water, it may be interesting to give my own observations. I have related in a former paper that I was quite unable in 1881 to get *Limnæus truncatulus* for my experiments, nor did I succeed in doing so until July of the following year, when there were floods on the river Isis near Oxford. The waters brought this snail down in vast multitudes, probably from its breeding haunts in marshy places up the river. It was extremely abundant, so numerous indeed, that a single sweep of a small hand-net repeatedly gave me more than 500 examples, and this was in a ditch where the year before I could not obtain a single *L. truncatulus*. All along the margins of the ditches the ground was covered by them, and they were found abundantly on the flooded ground.

On returning three weeks later to the same ditch I was unable to find a single example alive in the water. As I had not sufficient leisure on this visit to examine the ground near the ditch, I returned for the purpose of doing so eight days later. There had been dry weather since the flood, but early that morning heavy rain had fallen, and I found numbers of specimens of *L. truncatulus* on the gravel of a path near the ditch, and these seemed to have crawled out of the grass when revived by the rain. At the roots of the grass, all along the margin of the ditch, others were found in abundance. Some few shells were quite empty, but the majority contained the dried remains of the snail, which had shrunk far back into the spire of the shell. Most of these appeared to be quite dead, but were, however, merely dormant, for on placing them in water the tissues imbibed

moisture and assumed their natural bulk; and after a few hours the snails had regained their full activity, and were seemingly none the worse for their prolonged drying up.

To test the power of resisting drought possessed by the snail, I collected a number of specimens, and placed them in an open vessel on a shelf in a dry laboratory, in a position where the sun fell upon them for an hour or so daily. I found that rather more than half of them withstood twenty-six days of this treatment, and some few revived after more than six weeks. That the snails can live on moist ground, quite away from any quantity of water, for considerable periods, is sufficiently proved by the fact that I have kept them alive for eleven weeks on moist grass and moss, even when infested with the larval forms of the liver-fluke.

It is clear, therefore, that the kind of snail under consideration may be brought in great quantities by floods, and may be left on the fields when the waters pass away. The snails thus left continue to wander and feed, so long as the bottom of the grass remains moist. Their numbers are recruited from surrounding ditches and streams. Even on land *which is not liable to floods this snail may exist in large quantities*, having crawled from the ditches, ponds, streams, and marshy spots, through the moist grass. A drought may render the snail dormant, but, unless continued too long, it revives at the first shower of rain.

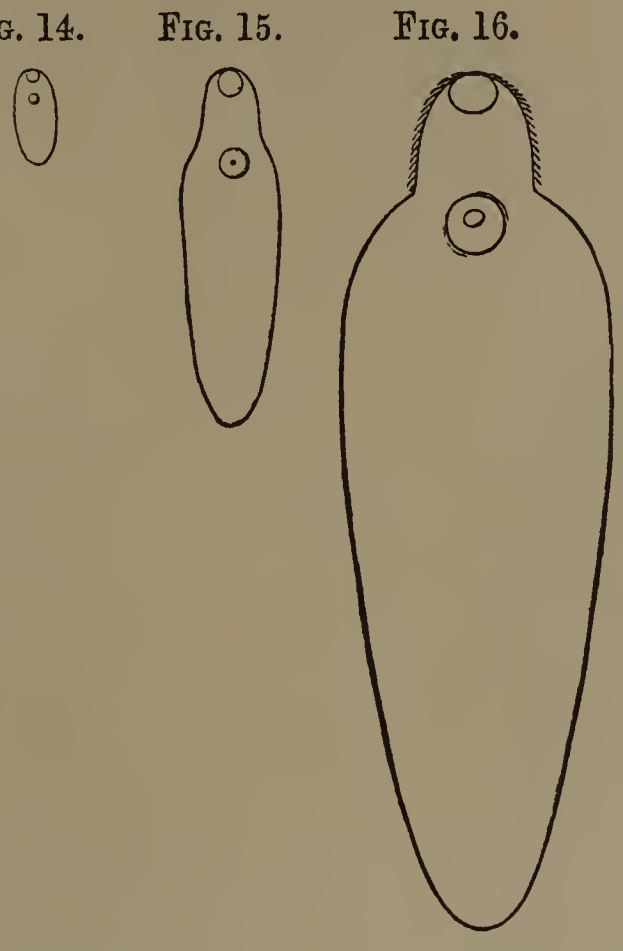
If there are fluke-eggs on the ground, the embryos hatched out of these will gain entrance to the *Limnæus truncatulus* living in wet places. Owing to the habit which this particular snail has of living so much out of the water, either on the banks of ditches, or farther away towards the centre of the fields if they are damp enough, the cercariæ (the larval forms destined to enter the sheep) will, on leaving their host, form their cysts on the grass in the places where they will have the best chance of being transferred to the sheep grazing on the ground.

Man himself sometimes serves as host to the liver-fluke, and in this case the cysts containing the young flukes are probably eaten with watercress.

*Growth and duration of life of the fluke in the sheep.*—From observations which I need not describe here, as they have been given in a former report,* it appears probable that at least six weeks elapse from the time the fluke is swallowed by the sheep before the parasite becomes adult and begins to produce eggs. A very great increase in bulk occurs, for when the young fluke is introduced it is perhaps only $\frac{1}{80}$th

* '*Journal of the Royal Agricultural Society*,' 1881, p. 25.

of an inch in length, whereas the adult fluke reaches an inch or an inch and a third. A change occurs also in the form of the body, as will be seen from Figs. 14, 15, 16, and 17; it is




Figs. 14, 15, 16.—Three young flukes from the liver of a sheep to show the change in form during growth. All are magnified $7\frac{1}{2}$ times. Fig. 14 (on the left) represents the smallest fluke I have ever found in a sheep; it was only $\frac{1}{24}$th of an inch in length. Fig. 15 (in the centre) shows the shape of a fluke $\frac{1}{8}$th of an inch long, and Fig. 16 (on the right) shows a fluke which has reached $\frac{1}{3}$rd of the full length of the adult animal. (Original.—A. P. T.)

due to the more rapid growth of the hind part of the body, which contains the reproductive organs (Fig. 18).

Of great practical importance is the question how long the fluke remains alive within the sheep. For it will depend upon the length of this period whether or not it is worth while trying to keep the infected animals alive until the life of the fluke has reached its natural limit.

The liver fluke is supposed by some to pass out of the sheep at the beginning of summer. If this were the case, its life would not last more than three-quarters of a year. Gerlach states that the fluke always passes out in the months of June and July, but Pech * says that he has seen flukes pass out from rotten sheep in autumn and winter, and suggests that they may have lived in the sheep more than a

* '*Der Thier-arzt*,' 1873, p. 87.

year. I have examined the droppings of sheep in June, sent by the kindness of a veterinary surgeon, which were asserted to contain dead flukes, but the so-called flukes proved on microscopic examination to be masses of discoloured mucus. From my own observations I am able to say that the flukes do *not* always pass out from the sheep in

Fig. 17.

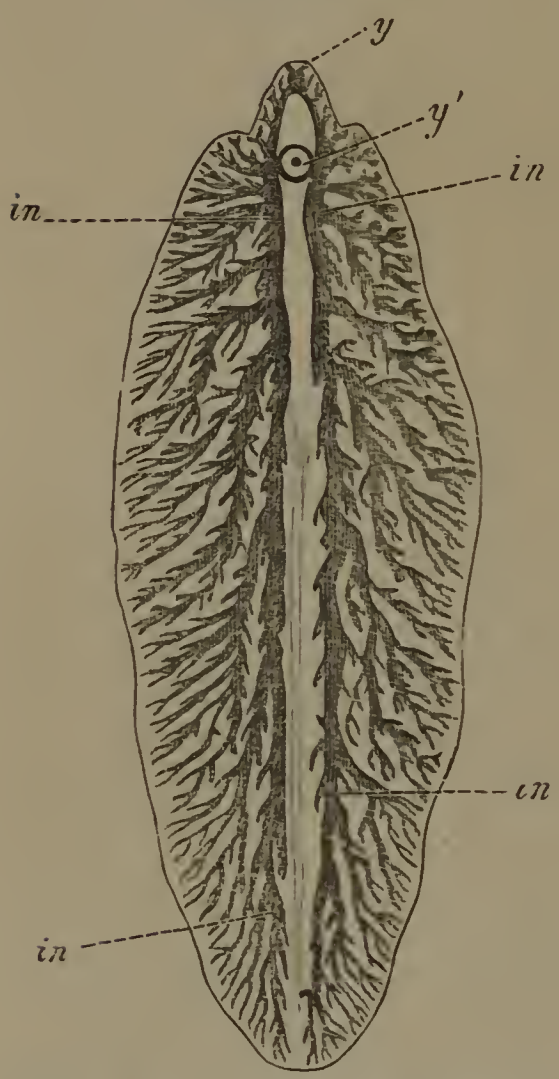



Fig. 17.—An adult fluke showing the branched digestive tract: *y*, the oral; *y'*, the ventral sucker; *in*, the branched intestine. In the centre, between the two main branches of the intestine, lies the chief trunk of the water-vessel. Twice the natural size. (Original.—W. H. J.)

Fig. 18.

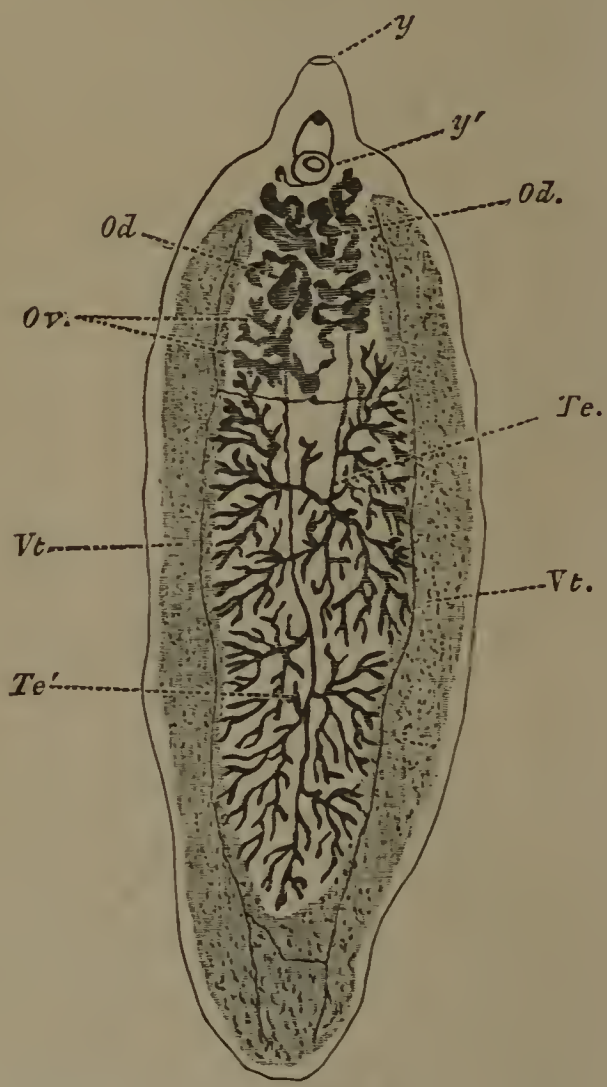



Fig. 18.—Another view of an adult fluke, showing the reproductive organs: *y*, the oral; *y'*, the ventral sucker; *Od*, the oviduct; *Ov*, the ovary; *Vt*, the vitellarium or gland that forms the granular yolk-cells surrounding the embryo in the egg; *Te*, the anterior; *Te'*, the posterior testis; their ducts run forwards. The generative opening is in front of the ventral sucker. Twice the natural size. (Original.—W. H. J.)

the summer time. There is no time of the year when sheep-livers, containing flukes which are clearly several months

old, cannot be obtained. In a former report,* a case was described in which the flukes within a sheep were proved to have lived for a longer period than one year. The animal took the rot in the autumn of 1879, and when it was killed on the 18th of December, 1880, its liver was found to be still full of flukes.

*Summary of the life history.*—The adult fluke in the liver of the sheep produces enormous numbers of eggs, which are distributed with the droppings of the sheep. If these eggs have moisture and a suitable degree of warmth they continue to live, and in each is formed an *embryo*. The embryo leaves the egg and swims in search of the particular snail, *Limnæus truncatulus*, within which its future life and growth take place. The embryo bores into the snail, and then grows into the form which is called a *sporocyst*. The sporocyst gives rise to the second generation. This generation is known as *redia*. The rediæ in turn produce the third generation, which has the form of a tadpole, and is called *cercaria*. The cercariæ quit the snail, and enclose themselves in envelopes or cysts, which are attached to the grass. When the grass to which the cysts adhere is eaten by the sheep, or other suitable host, the young liver-fluke comes out of the cyst and takes up its abode in the liver of its host, and the fatal circle is thus completed.

It will be seen, therefore, that the fluke-disease is a disease which alternates between a particular snail and the sheep. A sheep cannot take the infection *directly* from another sheep, nor can one snail take it *directly* from another snail. The sheep by spreading the eggs of the fluke, gives the infection to the snail, and the snail in turn, by harbouring and distributing the cercariæ, conveys the infection to the sheep.

(*To be continued.*)

* '*Journal of the Royal Agricultural Society*,' 1881, p. 26.

## HEIFER-VACCINATION.

Dr. H. A. Martin, of Massachusetts, in a paper read at the American Medical Association, observed that the proper sources of vaccine are young heifers which have not dropped a calf. The young animal is perfectly exempt from diseases to which the older animals are subject—tuberculosis, for instance, which in the bovine species is extremely difficult to check, is a disease of old animals, and recent discoveries make it appear that virus from a tuberculous animal is unsafe. Young animals, then, from four to eight months old, are to be preferred. After vaccination they are ready to yield the virus in from six to eight days. A physician must then determine when the vesicle is in a right state to yield lymph, and when pressure is to be applied. The epidermis of the heifer is very tough and resistant, and does not yield the virus so readily as the human arm. At each point where a puncture is made a drop of perfectly pellucid lymph appears, and upon the application of pressure it pours forth in a quantity that is surprising. The first points covered are so bloody that we do not use them, yet a large proportion of the points collected are bloody. The number of points collected from a single animal varies from 2000 to 6000. If you vaccinate an animal once, it can never be vaccinated again.—*Phil. Med. News.*

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## THE EFFECTS OF VARIOUS MEDICINES ON THE SECRETION OF MILK.

Iodide of potassium diminishes, salicylic acid increases, the quantity of milk secretion; alcohol, morphine, and lead leave the quantity unchanged, while pilocarpine does not increase the secretion. Salicylic acid increases the amount of sugar in the milk, alcohol the fat; lead, morphia, and pilocarpine exercise no influence, while, on the other hand, iodide of potassium disturbs the entire milk gland. Alcohol does not go over to the milk; lead and salicylic acid only in traces.—*Deut. Arch. f. Klin. Med.*

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# ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

MONTHLY COUNCIL, Wednesday, August 1st, 1883.
*Present*—Sir Brandreth Gibbs, President (in the chair).

## FOOT-AND-MOUTH DISEASE.

*Mr. Jabez Turner* said he appeared, under rather exceptional circumstances, to call the attention of the Veterinary Committee of the Council, and the Council generally, to a very severe, and, he thought, a somewhat exceptional attack of foot-and-mouth diease which was at the present time proceeding in his immediate neighbourbood (Peterborough). On May 3rd the disease broke out about five miles from his house, and it was pretty clearly understood that the contagion had been conveyed from the market at St. Ives. The case was reported to the authorities, and isolation duly took place; but in the course of that month several more outbreaks occurred. In the month of June the disease still proceeded. With all the precautions that were adopted, there were twelve new outbreaks in different places. Still the disease proceeded, and the precautions were, if possible, made more stringent than before; but in the month of July no less than thirty-one new outbreaks took place up to the 30th, and three more on the 31st. He thought these facts were of so peculiar a nature that he felt it his duty to state the case before the Council, and he would like to know if the Council would think it wise or proper to allow one of the Society's veterinary inspectors to go down and investigate the case, because he had it on good authority—the best of all authority—that none of these outbreaks in July could be satisfactorily accounted for. Although the animals had not been removed, the disease had gone from farm to farm, and there seemed to be no reason for it, except that the disease existed in the district.

In reply to *Lord Egerton*,

*Mr. Turner* said that the markets were not closed, but the infected areas were proclaimed, and no cattle were allowed either in or out of the areas.

*Mr. Wells* was unaware of Mr. Turner's intention to bring the matter forward, but was very glad that he had done so, as he also resided in the same neighbourhood, and the disease existed on two of his farms. Certainly there had been a very great and serious increase of disease in the neighbourhood, and the only hopeful remark which could be made was that it seemed to be of a milder type than that reported by Mr. Little last month. His own opinion was that so long as drovers and other people could move about and move cattle inside the infected areas, a great many of the precautions taken were nearly useless. He hardly knew whether it would be of any service to send a veterinary inspector down from the Society, but if it was thought so, the

agriculturists would be very glad of his advice. It was an excessively difficult thing to know what to recommend.

*Lord Egerton* observed that what Mr. Turner had stated could be easily understood if there was free intercourse from one farm to another, either by drovers, butchers, farmers, or anyone else. The disease must continue under such circumstances. In Cheshire a number of cases of disease could be traced to persons moving about from farm to farm. The utmost precautions should be exercised by farmers themselves in allowing persons to come on their farms.

*Mr. Turner* added that during the previous outbreak in the winter, when the cattle were in the yards, the disease seemed to be kept tolerably well in check; but now the cattle were in the fields, it seemed to "jump about," so to speak, in the most extraordinary manner, from farm to farm, and from field to field; and in spite of all the existing restrictions, which were extremely inconvenient and disagreeable, the disease was spreading in the way he had shown.

*Professor Brown* stated, in reference to the question of sending an inspector down, that one of the Government inspectors was now there making inquiries as to the concentration of the disease in that particular corner of the country. Unfortunately every step the Privy Council took in the direction of greater restrictions was met by very strong opposition. There were now before the Privy Council a large number of memorials from persons stating their conviction that the disease should not be treated so stringently, and the consequence was that the Privy Council were compelled to start an inquiry to see to what extent the places might be relieved. As to any attempt to interfere with the movement of persons, he imagined that no Government was strong enough to entertain the question. It was the sort of thing that could be done in Germany, but, he believed, in no other country. In no other country were the restrictions referring to foot-and-mouth disease so stringent as in England at the present time. He would shortly see Mr. Duguid's report, and if such seemed possible and desirable, he was quite sure that the Privy Council would be ready to impose further restrictions. But any increase of the restrictions, against the onerous nature of which people were now grumbling, would be met with further opposition; and he believed that unless the stock-owners were inclined to support the authorities, and unless the movement of animals was totally stopped within a certain space, there was absolutely no remedy that could be adopted. In conclusion, Professor Brown recounted the proceedings taken to avoid risk of disease, as well as to provide exhibitors at the York meeting with the necessary certificates for the removal of their stock, the whole of which left the show-yard in a healthy condition, and in a remarkably short space of time; and he added that there were no reports of any accession of foot-and-mouth disease from any district into which the exhibited animals were sent.

*Lord Moreton* recommended a plan which he had tried some years ago when disease existed on his farm. He had every gate tarred every morning, so that persons were very much disinclined to go on the farm.

*Mr. Wells* thought that most of the agriculturists in the infected district would willingly submit to further restrictions.

*Mr. Turner* concurred.

The subject then dropped.

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## CENTRAL VETERINARY MEDICAL SOCIETY.

A MEETING of this Society was held on the 19th July, at 10, Red Lion Square, at which the following Fellows assembled. Mr. J. Woodger (President); Professor Axe; Professor Pritchard; Messrs. H. K. Shaw, G. R. Dudgeon, H. Caton, W. Roots, G. Gray, A. Broad, J. Rowe, F. W. Wragg, A. B. Daniel, H. J. Hancock, T. Moore, J. Broad, Arthur Broad, J. H. Brown, F. G. Samson, and C. Sheather.

Mr. Adrian Jones, A.V.D., was one of the visitors.

*Mr. A. Broad* then read the following essay.

### ENDOCARDITIS.

I commence my remarks with the question—Is cardiac inflammation a very rare occurrence in the horse? and, as my answer, should say that it is not. When it is coexistent with other chest maladies there is great probability of it being overlooked, for its presence is not always defined by pathognomonic symptoms in the most clear manner; it frequently does accompany inflammatory affections of the chest, and is the cause to which should be attributed the tardy progress in many a protracted convalescence. Several cases of heart disease have come under my notice during the past few months, and, my attention having thus been drawn to the subject, I have thought it a good one to bring forward with a view of eliciting the result of the experience of others in regard to its relative frequency, and on various points in relation to it which may be discussed with advantage.

The study of the diseases of such an important and marvellous organ as the heart is of deep interest, and in no animal under our care is such a severe call made upon the cardiac mechanism as is in the case of the horse, for this reason we should expect to find heart mischief no great rarity among equine disorders.

Over exertion may not only directly produce grave consequences, such as sudden and complete failure of the heart's action, or rupture of its walls, but may also lay the foundation of serious trouble by straining and injuring the cardiac valves. But we should be prepared to meet with disease of the heart in the horse for the reason than in proportion to the ratio in which

an organ is highly elaborated and severely taxed is its liability to become the point of attack for the onslaught of disease.

Looking to the situation of the heart we find it well protected from any external injury or influences, and in construction it is, in the main, simple, its four cavities being formed, and separated by striped muscular tissue, a structure not ordinarily very prone to inflammatory attack. But to adapt the organ to the important purposes required of it a great amount of structural finish and delicacy is expended upon it, and this, in particular, in two points, firstly, its abundant supply of nerve force, secondly, its internal and external membranous coverings, and their arrangement.

The heart has within its walls important ganglia and nerves of the sympathetic system, it receives nerve fibres from the cerebro spinal system and is in intimate connection with other viscera through the important pneumogastric nerve; this is well seen in the marvellous manner in which the heart responds to impressions from various organs as the brain, and stomach. This reflex response to distant stimuli is a necessary provision for the harmonious working of the system, yet it renders the heart liable to suffer as the result of disorder affecting totally distinct organs. If we take, for example, an ordinary febrile attack, what functional disturbance we find affects the heart; again, see the effect, upon the action of the organ, of pressure upon the brain, or of various conditions of the stomach.

The presence in the heart of much fibrous tissue is another point to be noticed; surrounding it externally is the delicate pericardium, and its interior is covered or lined by the endocardium, a fine membrane of elaborate structure and further complicated by entering into the formation of valvular folds at the various cardiac orifices. The heart is well supplied with blood through the coronary arteries, and its well being is quickly affected by any deterioration in the quality of the nutrient fluid, but the presence of this amount of delicate membrane and fibrous structures renders it especially liable to suffer from that condition of the blood which so injuriously affects the fibrous tissue of the body generally, as is seen in rheumatic inflammation of the joints and thecæ of muscles. This action occurring in the heart is variously styled according to the situation involved, being either pericarditis, endocarditis or carditis (more precisely termed myocarditis). The first two forms of disease occur jointly and independently, and either or both may be accompanied by myocarditis.

The possible existence of carditis has been doubted, for it is argued that inflammation would arrest the action of the heart, and I would not attempt to deny that, if the inflammation were extensive, this would be the case, after a certain stage was reached; yet though this disease is rapid in progress, short in duration and fatal in termination, it does occasionally occur, producing most intense symptoms of distress, and causing death in a few hours. I have seen such instances, and reported a

typical case of the affection some years ago in the *Veterinarian*. The damaged condition of the heart-wall can be clearly seen upon *post-mortem* examination.

The inflammation extends from the membranes to the muscle, and it is extremely probable that some amount of myo-carditis frequently accompanies endocarditis, adding greatly to the severity of the symptoms.

If there is, in regard to pericarditis, one feature more noteworthy than another it is the insidiousness with which it frequently makes its onset and progress, many attacks of pleurisy are accompanied with pericarditis and the latter is not always recognised, for it sometimes produces little alteration in the symptoms, unless the most minute observation is employed. Subacute pericarditis is very apt to be completely overlooked, and only to be discovered to have existed at the autopsy when there is in evidence the distended pericardial sac, containing it may be several pints of serum. The nature and anatomy of our patients, and, too often, the circumstances under which our examinations have to be carried out, preclude our making that general use and study of auscultation which have been of such valuable assistance to the physician; under favorable circumstances, however, we are enabled to detect the friction sounds of the inflamed pericardium. I recently had under my care an interesting case of the kind, in which the heart symptoms were most manifest disturbed action, friction sound, and oppression of the pulmonary circulation (evinced by gaping and sighing), the attack resulting in hydrops pericardii and most severe dropsical engorgement of the hind legs, thighs, sheath, and inferior surface of abdomen. Fortunately the patient recovered. In this case I could not fail to notice the morbid condition of the liver and stomach, there was constant flatulence with offensive odour, the fæces were also extremely offensive, and later in the case a troublesome cutaneous eruption affected the tail and hind quarters, the morbid condition of appetite was such that the horse would actually eat his excrement.

I would not aver that inflammation of the endocardium and cardiac valves may not arise from an alteration in the blood supply as a direct result of external changes of temperature, or from some other influence acting upon the vaso-motor nerves, but I believe that the general cause is an altered or impaired condition of the blood. Dr. Richardson's notable experiments proved the susceptibility of the endocardium to an abnormal condition of the vital fluid circulating within the cardiac capillaries. By injecting acid solutions into the peritoneal cavity, and into the venous current of animals, he produced symptoms of endocarditis and valvular thickening. In common with other kindred structures in the body, the membranes and fibrous tissue in the heart are especially liable to inflammatory disorder during an attack of rheumatism when the blood is characteristically vitiated. Endocarditis should not be looked upon merely

as a possible sequal of a severe rheumatic affection but as one of the most probable manifestations of its onset, perhaps indeed the only one. Rheumatism is not of very frequent occurrence in the horse, the causes of mal-assimilation of food not being so common as in some other domestic animals, and in man. It is seldom that the food of the horse is too rich in quality, and when the allowance of nutriment is too abundant there is usually a sufficiency of hard work to compensate for it; still, rheumatism from one cause or another does occur, the rheumatic condition of blood is produced, and its injurious influence may be felt upon the fibrous structures within and around the heart without much perceptible effect upon the joints or muscles. Even in subacute rheumatism the heart may be in this manner affected, and I am of opinion that cardiac inflammation is excited by a state of the blood not very unlike that peculiar to rheumatism. An injuriously abnormal condition of the vital fluid may be induced by failure in some one or other of those glandular organs whose office it is to renovate and purify the blood, by construction or elimination, as the liver, skin, or kidneys. A chill acting upon the cutaneous excretory apparatus may cause harm not only by driving the blood from the surface capillaries to remote parts but by engendering an impure condition of blood through the suppression of the healthful emunctory action which the skin possesses. I have certainly noticed the coincidence of heart mischief with both liver and kidney derangement. As I have indicated, the blood may be injuriously vitiated through want of normal excretory powers in the liver or insufficient transformation of nutritive material in its transit through the portal circulation.

The next point to which I wish to draw attention is the significance of the characteristic symptoms of the disorder. As in the case of other inflammatory complaints endocarditis is accompanied by the symptoms of febrile disturbance in varying degree, according to the severity of the attack. The temperature is much elevated, the appetite fails, the patient suffers from coldness of the extremities, as well as general surface chilliness, and exhibits dulness, and marked expression of uneasiness, but there are symptoms more pathognomonic. The action of the heart at once arrests attention, it is rapid and excited but very variable in the force of its pulsations, with occasional intermittence. As the malady progresses in intensity the pulsation betrays a most irritably excited condition of the heart, the beating is tumultuous, extraordinarily rapid, and to be distinctly heard, and even felt, over every part of the thorax; yet this forcible contraction is distorted and erratic, for while the heart is wildly beating 110 or 120 times in the minute, or even more rapidly, scarcely more than half its contractile efforts produce an effectual pulse wave in the arteries, so that we have the apparent anomaly of a radial pulse of 76 or 80 while the heart beats number 130 per minute. The second sound is indistinct

or wanting, and a murmur can sometimes be detected accompanying the systole. Another prominent symptom is a jugular pulsation synchronous with each contraction of the heart. There is, in the acute stages, embarrassment in respiration, and sometimes a frequent cough. I have found the febrile disturbance easily and quickly relieved, but the minor symptoms of uneasiness only gradually disappear as the heart returns to its normal condition. The apparent reflux up the jugular veins is due to the imperfect closure of the right auriculo-ventricular orifice, there is insufficient approximation of the muscular walls, and non apposition of the tricuspid valve segments; at each systole a rush of blood is thus allowed to pass towards the auricle, where it arrests the flow from the venæ cavæ, which oncoming current, receiving a sudden cheek, gives rise to a backward impulse, apparently a wave of regurgitation far up the neck. There is also some patency of the mitral orifice, which allows regurgitation of blood to the left auricle, thus impeding the flow of blood from the pulmonary veins, and causing a feeling of oppression in the lungs.

The systemic arterial circulation also is much weakened; raising the head will sometimes cause a serious check to the blood current, and should the patient be injudiciously exercised or kept at work too long after the commencement of the disease, he will be extremely likely to suddenly drop.

The peculiar character of the rapid pulsation of the heart is a singular feature, for though each beat appears of equal force with the others, many of them are completely abortive, the regular rhythm of the heart is destroyed, there seems no second sound, and one ventricular contraction so quickly follows another that the blood is not propelled through the aorta at each stroke, much of the impulse being expended in the direction of the auricles. To what can we attribute this excited abnormality of action but to exalted nervous irritability of the cardiac ganglia, in consequence of the inflammatory disturbance around them. This view receives support from the beneficial effect which follows the administration of digitalis; this drug acting upon the heart from a centre within the medulla oblongata, through the medium of the inhibitory nerves, controls the nervous irritability and steadies the pulse, at the same time giving it force, digitalis being supposed to excite the cardiac muscle to regular contraction.

It is well known that there is a simple form of intermittency frequently met with in horses apparently healthy and at work, and more frequently seen as a sequence of a debilitating disorder. We may regard this as being due to a slight deficiency of nerve force; the want of beat occurs at regular intervals, and in cases of debility in the cardiac centres, at an interval which, while remaining regular, gradually increases as the patient gains strength. In inflammatory disorder of the heart the nervous apparatus is violently deranged, rhythm and co-ordinating power

are destroyed, the intermittency occurs at irregular intervals, lasts during a variable time of beats, and there is also a complete absence of regularity in both the force and rate of the cardiac contractions.

This condition of things indicates mischief in the heart of a serious character, and may be considered as due to the irritation of the cardiac nerve centres I have alluded to. It must not, however, be forgotten that both intermittent pulse and some amount of abnormal action of the heart may be caused by reflex impressions derived from other organs.

Endocarditis is also met with in a subacute form. The animal affected may not appear to suffer till put to work, when it will suddenly stop at frequent intervals, appear more or less distressed, and be for a short time unable to proceed. After this has occurred a few times the animal will be confined to the stable, we shall find the pulse quickened perhaps to from 70 to 80 beats, it will be irregular and intermittent to a marked degree, and auscultation may assist in indicating the nature of the mischief. With appropriate treatment the patient will rapidly improve, though a considerable time may elapse before the heart regains its normal tone and capacity for work. In cases of long standing, wherein hypertrophy exists, the horse will not be found fit to undergo much work.

Though endocarditis is seldom directly fatal, its indirect consequences are of the most serious nature. Among these are hypertrophy and valvular thickening, with vegetative growths. The former, no doubt, arises from the excessive ventricular exertion causing greater activity of capillary circulation and increased nourishment in consequence. The valvular increase is a natural result of the inflammation, as we see in a tendon after sprain or ossific enlargement from bone in situations where it is immaterial; but in the case before us grave consequences ensue, the cardiac valves are rendered rigid and irregular, and the opening which they should assist in closing remains partially open, the pulmonic circuit of blood is impeded, hypertrophy follows, and fibrinous clot is apt to form on the valvular growth; the danger is then incurred of portions of this clot finding their way into minute arteries, there to become emboli, and consequent sources of danger.

Another serious result of valvular insufficiency is weakness of the arterial current, and obstruction to the return of the venous stream; hence we find dropsical effusions in various parts. When no dropsy is manifest externally we may frequently find it affecting the coatings of the intestines through nearly their whole track, a jelly-like layer being situated beneath the peritoneal tunic.

*Treatment.*—There is little of a specific nature in the treatment of this disease. The chief objects to be attained are the reduction of the fever and inflammation, and the prevention of fibrinous deposit within the endocardial tissue. Nitrate of potass will

be found extremely useful with an occasional dose of two or three ounces of sulphate magnesia in some cases. A few drops of aconite may be given with advantage when the temperature is very high and the pulse rapid; diffusible stimulants, as the ethers and carbonate of ammonia, are to be recommended in moderate doses. Mustard plasters over the heart will do good, and I have used successfully hot wet flannel rugs covered with waterproof cloth. I believe there is much to recommend the early application of a blister, though I have only tried this remedy in the more subacute cases. The opponents of blistering will say that such remedies increase the disposition of the blood to fibrinous formations. Certainly the local inflammation existing in the heart will have this effect if unchecked. Therefore, if blisters will effectually relieve the inflammation, apply them, and so lessen the danger which is locally existing; the power of drugs will have some effect in counteracting any tendency in the blood to clot around the valves.

I am of opinion that a smart blister will quickly relieve the inflamed membrane.

After the more urgent symptoms have improved digitalis will prove of signal value in restoring the nerve strength, and allaying irritability. I have given twenty-grain doses twice daily and found it sufficient to rapidly cause improvement in the pulse. It is of course inadmissible when the symptoms point to a dilated, weakened, or atrophied condition of the heart.

*Professor Axe*, commencing the discussion of the subject, said, "I have listened to the remarks of the essayist with considerable pleasure and interest; I would, however, point out that in my experienee and judgment endocarditis, as a distinct disease, is very rare in the horse, and an affection whose diagnosis is attended with great uncertainty, so that it may be said to be of a purely speculative character. The only cases of simple endocarditis which have come under my notice have been of an acute ulcerative character such as is represented in the diagram before you. That example was furnished by a horse which died suddenly from septicæmia while under treatment for phalangeal fistula, but no such condition of the endocardium as here depicted was suspected to exist. Endocarditis is not unknown to me as a secondary affection, of limited extent, consequent on mechanical injury of the membrane by inflammatory growths on some part of the valvular mechanism; but even such examples are rare, and for the reason that horses and other of our domesticated quadrupeds, when suffering from heart affections, are too little cared for and controlled in their movements to admit of those extreme physical changes in the valves being reached to which endocarditis usually owes its origin. It is more often the case that, under the strain of forced exertion, disablement of the heart and death ensue before the conditions for the provocation of endocarditis are laid down. In the

human subject endocarditis as a complication of valvular disease is not uncommon, because of the progress the valvular swelling and granulation are permitted to make, under the extreme caution and general care of the patient himself, which tend to the prolongation of life. That simple endocarditis does occur as a consequence of hæmal changes is certainly the case, as is shown in the diagram before us, but I question our proficiency at this time to form a reliable diagnosis.

*Professor Pritchard* said he had clinically had but little experience of the malady under discussion as a distinct uncomplicated disease. He had many times found the lining membrane on the left side of the heart seriously congested, and on two or three occasions had observed ulceration, but every instance of this had been preceded by some other, and fatal, complaint. He might say that he had never made an examination *post mortem* in a disease associated for any length of time with disturbed and excited cardiac action without finding some amount of hyperæmia of the endocardium. He had found the left side of the heart thus affected in fatal cases of bowel inflammation, and pneumonia. Why the left side should so especially be the affected part was, he thought, matter for discussion.

*Mr. Wragg* said he could endorse the remarks of Professor Pritchard. He could not say that he had ever diagnosed endocarditis as a primary affection; but on several occasions, while examining the hearts of horses which had died a painful death, he had observed extravasation beneath the membrane.

*Mr. Daniel* alluded to cases of megrims following endocarditis, and gave one instance. The horse had been turned out to grass, and on being taken up was found to be in bad condition and unfit for ordinary work. After doing some amount of light work an attack of megrims came on, and succeeding attacks proved so severe that the animal was destroyed. No brain disorder was detected; in the right ventricle were valvular depositions, and also similar fibrinous formations on the endocardium of the ventricle, these changes might, he thought, be traced to injury from the strain involved in starting heavy loads. He attributed the cerebral disturbance to pressure, in consequence of the difficulty in the return of the blood from the brain through the ventricular mischief.

*Professor Pritchard* asked if the right auricle was found to be healthy.

*Mr. Daniel*, in reply, said he had no mention of the auricle in his notes, but believed that it appeared normal.

*Professor Pritchard* said his reason for asking was, that the right auricle was the cavity which received the venous blood; and, looking upon megrims as due to a congested state of the cerebral venous sinuses, he could not understand tracing the attacks of megrims to the condition of the heart, provided that there was nothing abnormal in the right auricle.

*Mr. Hancock* thought that as the varieties of brain disorder

were many it was well to look deeply, and attempt to ascribe each case to its proper cause. He thought it very probable that the cerebral affection instanced by Mr. Daniel was the result of ventricular disease. It was generally conceded that brain symptoms of the class alluded to were due to epilepsy, and if this disease be considered to arise from a deficient supply of blood to the brain, the sequence of cause and effect was complete, as the brain would suffer from the obstruction to its capillary circulation.

*Professor Axe* considered that two explanations might be offered as to the cause of the epileptic seizures in the case under consideration: firstly, obstruction to the free flow of blood through the right side of the heart inducing venous engorgement and defective nourishment of the brain tissue; secondly, disintegration of the intra-cardiac coagula leading to pulmonary embolism and secondary capillary embolism of the brain. He related two cases bearing on the point: one was that of a horse admitted to the College Infirmary as a sufferer from megrims; the only lesion in the brain was a minute spot of congestion on the anterior part of the floor of the fourth ventricle. In the second case the horse was also subject to megrims, and showed very marked cardiac disturbance; a lesion of the same nature was found in exactly the same position as in the first case, and microscopical investigations revealed that it was the result of a small embolism.

*Mr. Gray* considered that were endocarditis produced by straining efforts as easily as it would appear from Mr. Daniel's statements, it should more frequently be met with. The differential diagnosis between pericarditis and endocarditis was, he found, a subject of difficulty. He recently had seen a horse suffering from what he considered to be endocarditis, and it was produced in the manner alluded to by Mr. Daniel. The animal was drawing a heavy load over ploughed land when he suddenly fell, and then exhibited symptoms similar to those mentioned by the essayist. Relief was afforded by the application of a blister over the heart. In another case the horse, after exhibiting symptoms of heart disease, became subject to fainting fits, somewhat resembling though not identical with megrims. In fits of the kind he alluded to, the patient generally fell, and they should be distinguished from attacks of megrims. After death, in cases where endocarditis existed, he usually had found extravasation beneath the membrane.

*Mr. Woodger* said that endocarditis was not considered easily diagnosable in man, and he did not think that in our practice we should be expected to diagnose it with greater facility. No doubt it was to be met with, chiefly in combination with other diseases, as pleuro-pneumonia and disease of the kidney. He expressed his agreement with the remarks of Professors Pritchard and Axe. He did not recollect seeing a pure case of endocarditis.

*Mr. Broad* said it would appear that his experience had been somewhat peculiar with regard to the number of heart-cases he had met with, comparatively. But he wished to emphasise two or three points. In the first place he had certainly not said that endocarditis was found uncomplicated by other affections. Sometimes there is evidence of renal disorder, or the liver is at fault; at others, inflammation of the lungs or pleuræ accompanies the malady; in short, the cause to which he attributed the disease was disorder of the blood, through prior derangement of other organs.

The primary cases of endocarditis were due to the strain of the valves, those of pericarditis were of traumatic origin.

His attention had but recently been directed to this subject, as till within the last two years he had met with but very few occurrences of the disease, but his remarks were not founded on theory only, and he should be pleased to bring forward some of the cases he had lately seen, he had originally intended to embody them in the essay. He shortly related two cases. With Mr. Gray, he considered that the distinction of cases of endocarditis from pericarditis was a matter of difficulty, requiring care and experience, and it should be borne in mind that they were frequently co-existent. He had not met with megrims as a resultant of heart disease, it appeared a probable consequence of such a malady, though with the retarded current from the brain, there was also diminished force in the arterial stream sent in that direction, which would be a compensatory point in so far as mechanical pressure was concerned.

*Professor Axe* said he thought that the cases which Mr. Broad has just detailed were valvular ones, which gave rise afterwards to endocardial injury.

The essayist then replied that it appeared to him that in endocarditis the mitral valve was usually, and rightly, considered to be the especially chosen point of attack for endocardial inflammation. Such was the case in rheumatism. He would moreover consider that fibrous thickening of the valve, or vegetative growth upon its structure, argued the existence of previous inflammation from one cause or another, injury or otherwise, in other words he would say of endocarditis.

*Professor Pritchard* then proposed a vote of thanks to the Essayist, which was seconded by *Professor Axe* and accorded.

## YORKSHIRE VETERINARY MEDICAL SOCIETY.

The summer quarterly meeting of the Society was held at the Queen's Hotel, on Monday, the 23rd July, the President, Mr. J. M. Axe, in the chair; the following members were also present, viz. Professor J. W. Axe, Messrs. J. Freeman, T. Greaves, J. S. Carter, J. W. Anderton, B. Smith, Peter Walker, J. E. Scriven, H. Snarry, G. Whitehead, A. W. Briggs, R. L. Robertson, T. C. Toop, W. G. Schofield, G. E. Bowman, W. F. Greenhalgh, H. Cooper, J. H. Carter, and the Secretary. Messrs. G. T. Pickering and J. McLean were present as visitors. Apologies for non-attendance were received from Professor Williams, Messrs. E. C. Dray, H. Fletcher, Geo. Carter, F. Danby, J. and J. Freeman and J. H. Ferguson.

The minutes of the last meeting were read and confirmed.

The *Secretary* gave notice that at the next meeting he should propose Professor J. W. Axe to be an honorary member of this Society.

The *President* nominated Mr. Reynolds, of Mansfield; Mr. Snarry nominated Mr. G. T. Pickering, of York.

The *Secretary* read some letters received by him respecting the appointment of Registered Practitioners as Veterinary Inspectors. After some discussion, it was decided not to take action; the mischief was done, and there did not appear any reasonable grounds to suppose that the obnoxious privilege would be rescinded by the Privy Council.

*Professor Axe* read a highly instructive and scientific paper upon the Etiology and Pathology of the singular affection occurring in horses, termed "Azoturia."

In the discussion which followed, the symptoms and treatment were the argumentative points; Messrs. J. Freeman, T. Greaves, Josh. Carter, Schofield, P. Walker, B. Smith, Snarry, the President and the Secretary, took part in the debate.

*Mr. Greaves* proposed, *Mr. Freeman* seconded, a vote of thanks to Professor Axe for his kindness in bringing the interesting subject under the notice of the members. Carried with acclamation.

*Mr. J. H. Carter* related a case of early fecundity in a heifer, being delivered of a calf at twelve months and one week old.

After the general business, Professor Axe delivered a Lecture on "Azoturia."

The *Professor* first directed attention to the divergent views which from time to time have been held in regard to the pathology of the affection, and at the same time pointed out those by which the malady is distinguishable from hysteria, sprain of the psoæ muscles, and other ailments with which veterinary pathologists have, in the past, endeavoured to identify it. After describing the circumstances under which the disorder occurs, he then entered into a detailed description of the sym-

ptoms of the malady, and afterwards drew attention to the present unsatisfactory state of our knowledge of its pathology. Professor Axe combated the views of Williams and others, who view it as the outcome of an immoderate accumulation of urea in the blood, and adduced a large amount of physiological and pathological evidence in support of his contention. In regard to the condition of the urine, the Professor showed by a series of chemical analyses:—

1. That the precipitate thrown down on the addition of nitric acid and subsequent boiling is essentially albumen and not *urea* as has been stated.

2. That the discoloration is due to the colouring matter of the blood, as shown by the application of suitable reagents.

3. That while the amount of urea contained in the urine varies in different cases, it cannot be said to exist in any abnormal proportion. He further stated that the simple presence of urea in the serum of the blood, as referred to by Williams, is no indication of its being the disease-producing agent, inasmuch as urea is normally present in it. As to the specific gravity of the urine, the Professor stated that in none of the cases to which his attention had been directed had any marked increase been observed. In respect of the composition of the urine he had noticed a considerable diminution in the amount of the calcium carbonate, and a notable increase in the ammonio-magnesium phosphates.

In speaking of the condition of the tissues after death he dwelt on the general septicæmic character of the changes, and specially referred to their œdematous condition. In a case recently brought under his notice the amount of fluid contained in the muscular and hepatic tissues was estimated and compared with that contained in the same structures in health with the result stated below.

*Estimation of Moisture in muscle tissue of Horse suffering from "Azoturia."*

1. From the psoæ muscle 8 ounces or 3840 grains of flesh were removed and correctly weighed.

2. On some of the fluid being removed, by squeezing, it was found to have lost 1050 grains.

3. It was then minced up, and placed in a water-bath (the temperature not exceeding 150° Fahr.) for 24 hours, and again weighed, and was found to have lost altogether 2717 grains of moisture.

4. It was now placed in the water-bath for 12 hours and again weighed, but the weight was found to be constant.

| | |
|---|---|
| Water . . . . . | 2717 |
| Flesh . . . . . | 1123 |
| | 3840 grains. |

There being present in the muscle, water equal to 70·7 per cent.

*Estimation of Moisture in hepatic tissue of a Horse suffering from "Azoturia."*

1. Eight (8) ounces of the liver were taken and correctly weighed.
2. On some of the fluid being removed by squeezing, it was found to have lost 1125 grains.
3. The liver was now minced up and put into a water-bath (temperature 150° Fahr.) for 24 hours, and again weighed, it was found to have lost 2478 grains.
4. It was then put into the same bath for 12 hours longer, at the end of which time it was again weighed, but found to be constant.

| | |
|---|---|
| Water . . . . . | 2478 |
| Flesh . . . . . | 1362 |
| | 3840 grains. |

There being present in the liver, water equal to 64·5 per cent.

*Estimation of Moisture in muscular tissue of a Horse in health.*

A piece of psoæ muscle was taken from a horse and weighed. After the water had been expelled, it was found to have lost 50·37 per cent. of moisture.

*Estimation of Moisture in hepatic tissue of a Horse in health.*

A piece of liver was taken from a mare and weighed. After the water had been expelled, it was found to have lost 44·2 per cent. of moisture.

*Analysis of Urine in health.*

Three samples of urine were taken from three mares and yielded respectively the following proportion of urea:—

| | |
|---|---|
| 1st sample . . | 11·9 parts per 1000. |
| 2nd „ . . | 12·4 „ „ |
| 3rd „ . . | 11·38 „ „ |

When treated with peroxide of hydrogen and tincture of guaiacum they gave no coloration, showing the absence of blood; when a small quantity of blood was added to the urine the hydrogen peroxide and guaiacum gave a distinct blue coloration.

*Analysis of Urine in "Azoturia."*

On Wednesday, June 13th, a portion of urine removed from a bay cart mare suffering from "Azoturia" was submitted for analysis.

*Physical characters.*—Colour, in bulk, chocolate brown, viewed in a test-tube bright red, transparent, somewhat thicker than water; a small amount of granular matter visible in suspension.

Specific gravity 1015. To test paper it gave a distinctly alkaline reaction. On the addition of nitric acid, there was no effervescence; on being boiled a flocculent precipitate of albumen was thrown down. A portion of the urine was taken and tested by the guaiacum test previously employed for the healthy urine, when a beautiful blue coloration was produced, indicating the presence of blood. A portion of blood from the same animal afforded the same reaction.

The total solids were equal to 30·36 parts per thousand, and were of a bright red hue, due to the presence of the colouring matter of the blood and were estimated according to Neubauer's process ('Zeitschrift für Analytische Chemie,' ii, p. 166). The urea was estimated by Russell and West's process.

The ash or total saline matter was found to be equal to 4·61 parts per thousand.

The ash contained a very large amount of iron probably derived from the constituents of the blood.

The ammonia was estimated by Schlösing's method and found to be equal to ·0039453 parts of urea per thousand.

*Proportion of chief constituents in* 1000 *parts.*

| | |
|---|---|
| Water | 969·64 |
| Urea | 11·59 |
| Ash | 4·61 |
| Hippuric acid, Extractives, Blood and other matters | 14·16 |
| | 1000·00 |

*Professor Axe* concluded by saying—From a full consideration of all the facts and circumstances which my investigation has so far revealed, I am constrained to look upon the term "Azoturia" as a misnomer which cannot be sustained in any sense whatever. As yet I have only proceeded a short way in the inquiry with which I am engaged, but it has already been rendered obvious that the teachings of the present are based on purely theoretical grounds, and rest rather on physiological possibilities than on pathological data.

The etiology and pathology of the affection still remain obscure, and much further light is needed before a precise definition can be given of their essential nature.

Provisionally I think the disease may consistently be regarded as *Acute Convulsive Hæmatinuria.* I have to thank my colleague, Professor Tuson, and his very able assistant, Mr. Blair, for the substantial help they have afforded me in this enquiry.

Wm. Broughton, *Hon. Sec.*

# LINCOLNSHIRE VETERINARY MEDICAL SOCIETY.

A MEETING of the Lincolnshire Veterinary Medical Society was held at the George Hotel, Grantham, on Thursday, June 28th, 1883.

The President, Capt. RUSSELL, in the chair.

*Present.*—Messrs. T. Batchelder (Grantham), J. Hoole (Sleaford), H. Brooks (Fulbeck), J. Mackinder (Peterborough), F. Spencer (Wragby), W. Field (Grimsby), S. Whitworth (Grantham), W. Hoole (Heckington), J. Brown (Navenby), T. Runciman (Market Deeping), T. Smith (Market (Rasen), and W. Stanley Carless (Lincoln), Secretary.

The minutes of the last meeting of the Society were read and confirmed.

The *Chairman* said: With reference to these minutes, we have had an excellent example of the want of sympathy and good feeling that exists amongst veterinary practitioners in the elections of candidates for the Council of the Royal College at the annual meeting. You may have noticed the number of candidates for election, and yet there was only one country practitioner elected. All the others were army or London men, and this was simply because the provincial Associations had not worked in harmony with each other. Our Secretary wrote and volunteered the assistance of this Society in pushing the various candidates. From some he received no answers, and in the case of others they declined. The Midland Counties' candidate was not elected, and, in fact, all the others were shut out with the exception of Mr. Whittle, the candidate of the Lancashire Society. It is most important we should act and work together to get men from the country upon the Council. Every year we see the result of electing London men, inasmuch as they hardly represent the wishes of country practitioners. We must work together, and have a strong number of subscribing members to work for ourselves, or for such candidates as we may select.

The *Secretary* then read correspondence from gentlemen unable to be present.

The *Secretary* remarked that he unfortunately forgot the *Veterinarian*, but a report of the proceedings would in future be sent to both journals.

The *Chairman*.—With reference to the registration of unqualified practitioners, the persons whose names were sent up, the result of our first meeting at Lincoln, have all been elected. The last circular from the Royal College was the result of the remarks we made. If any veterinary surgeon wished to oppose a candidate on the grounds of a conviction or otherwise, a statutory declaration would be necessary. In the case of one individual the facts relating to two separate convictions before a

magistrate were brought forward, but in the absence of the statutory declaration that person is registered; but in the Act it is distinctly stated that "no person shall be admitted against whom a conviction was found." There were two or three spoke on this subject at the annual meeting. There were on the list those who had undergone terms of imprisonment, but as no one had made a statutory declaration to that effect these objections were said to be null and void.

*Mr. Smith* said several remarks had been made, and there was some difference of opinion about the five years' practice being a qualification, or whether the candidate should not have only been with a qualified practitioner for that time.

The *Chairman* observed that had evidently been overruled, because there were several on the list who had not been in practice on their own account. They were admitted if they had been assistants to qualified veterinary surgeons, and there was one who had only been the head blacksmith in a veterinary surgeon's yard.

*Mr. Mackinder* remarked that where they knew of any previous conviction they could upset it, even if the party had been registered.

The *Chairman*.—No doubt of it, if you make a statutory declaration.

The *Secretary* then read a letter which he had received in reference to rescinding the Order from the Privy Council Office, referring to the employment of registered men as veterinary inspectors, and asked whether it would be best to send a letter to the Privy Council Office, asking them to rescind it, or to make inquiry, and move through the other Societies.

*Mr. Runciman* inquired how about those who were not registered?

The *Chairman*.—That certainly wants inquiring into. The Act states that no man shall practise except he is registered; but any one holding the appointment of inspector can continue to hold it. This is an anomally which you cannot reconcile. I think we should be justified in asking the secretary to write to the other provincial Societies, asking what steps they will take, and saying that we would join them.

*Mr. Bachelder* then formally made his proposition as follows: "It has been observed that an order has been passed by the Privy Council, allowing unregistered practitioners of veterinary medicine to continue in their office of inspectors under the Contagious Diseases (Animals) Act. This Society, therefore, desires to express their disapproval of this order, to the intent that steps be taken to rescind it as soon as possible."

*Mr. Runciman* moved, "That this proposition shall be forwarded to the other provincial Societies, and that they shall be asked to join in an effort to obtain the extinction of that order."

*Mr. Mackinder* seconded, and the resolution was carried unanimously.

The *President* then read his inaugural address upon "The Politics of the Veterinary Profession," and a discussion followed, in which Mr. Mackinder, Mr. Whitworth, and Mr. Runciman took part.

*Mr. Carless* threw out a suggestion in reference to members being refunded any expenses incurred in defending actions against unqualified men. No decision, however, was arrived at on that question.

*Mr. Whitworth* proposed Boston as the place for the next meeting of the Association.

*Mr. Hoole* seconded. He thought Boston was as central a place as they could have.—Carried unanimously.

*Mr. Runciman* proposed a vote of thanks to Capt. Russell for his excellent address and genial conduct in the chair.

*Mr. Hoole* seconded, and the resolution was carried unanimously.

*Mr. Whitworth* offered (in case no one else came forward) to read a paper at the next meeting of the Society at Boston.

W. Stanley Carless, *Secretary*.

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## NEW MEMBERS OF THE PROFESSION.

At the meetings of the Scottish Section of the Court of Examiners of the Royal College of Veterinary Surgeons, held in Edinburgh and Glasgow on and between July 23rd and August 2nd, the following gentlemen passed their "Final" Examination, and were admitted Members of the Profession:

### Glasgow College, July 23rd and 24th.

| | |
|---|---|
| Mr. John James Ross | Ballymena, Co. Antrim. |
| — Gordon Frew. | Glasgow. |

### Edinburgh New College, July 25th, 26th and 27th.

| | |
|---|---|
| Mr. John Young | Cockermouth, Cumberland. |
| — Robert E. White | Tadcaster, Yorkshire. |
| — Patrick J. Culhane | Charleville, Cork. |
| — Daniel O'Leary | Knockany, Limerick. |
| — William Scott | Clonmel, Tipperary. |

### Edinburgh Old College, July 25th, 26th and 27th.

| | |
|---|---|
| Mr. David J. Barry | Limerick. |
| — William Kirk | Rampore Haut, Bengal. |
| — Robert F. Grossart | Carstairs, Lanarkshire. |
| — Thomas H. Rochfort | Miltown, Co. Clare. |
| — Murray Lornie | Errol, Perthshire. |

The following passed their "Second" Examination:

GLASGOW COLLEGE, July 23rd.

Mr. J. Gowans Deans.
— George E. Gibson.
Mr. Donald McLardy.
— Robert M. Malloch.
Mr. George O. McGregor.

EDINBURGH NEW COLLEGE, July 25th.

Mr. Isaïe Nadal.
Mr. Gerard Hulme.
Mr. Francis C. Golden.

EDINBURGH OLD COLLEGE, July 25th.

Mr. William T. Jones.
— George C. Robertson
Mr. Timothy J. Daly.
* — John Riddoch.

The following passed their "First" Examination:

EDINBURGH NEW COLLEGE, July 30th and 31st.

Mr. W. Bannatyne.
— C. Drabble.
* — Thomas Anderson.
— Thos. Duckworth.
— Thos. Peacocke.
— A. B. Chamberlain.
* — R. B. Porch.
— James Bell.
— John A. Hodgman.
* — Robert Price.
— F. W. Somers.
— William Chadwick.
* — Charles Galloway.
— William Fenwick.
*Mr. Alexander Kay.
— Thomas Shepherd.
— Fred. Sweeting.
— B. W. Bloomfield.
* — George W. Simpson.
* — Richard W. Dawtrey.
— Tom Secker.
— William Noar.
* — G. W. Lancely.
* — J. A. Robinson.
† — John Moore.
— W. N. A. Harris.
* — W. D. Connochie.

EDINBURGH OLD COLLEGE, July 31st and August 1st.

Mr. William Hodge.
— A. W. Davis.
— John Armstrong.
— John Barr.
— George Kinnell.
* — John Whitecross.
— Solomon Frost.
— John S. Lloyd.
— Percival Snaith.
— John Troughear.
Mr. Laurence Power.
* — Robert Reid.
— John Hawke.
* — Henry Rickell.
— Edward Griffiths.
— Alexander Levie.
— Frank Ball.
— Henry Taylor.
— R. E. Thomas.
— Fred. Tonar.

* Marked thus, passed with *Great Credit.*
† Marked thus, passed with *Very Great Credit.*

GLASGOW COLLEGE, August 2nd.

| | |
|---|---|
| Mr. John Nicholson. | Mr. D. McIntyre. |
| — Andrew Reid. | — John McKinna. |
| — Hugh Farquhar. | — Thomas Dobie. |
| * — Charles J. Doyle. | — William Ferguson. |
| — Jno. A. Cunningham | — Hugh O. Richard. |
| — Richard Hamilton. | — William Hodgson. |
| * — D. J. McCambridge | † — Edwin Sayer. |
| — Willm. Carruthers. | — T. F. Renchan. |
| — David Weir. | |

R. RUTHERFORD, M.R.C.V.S.,
*Secretary, Exam. Board (Scottish Section.*

Edin., August 6th, 1883.

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## GLASGOW VETERINARY COLLEGE.

THE Summer Session of this Institution terminated on the 20th ult., and on the 23rd and 24th ult. and 2nd inst. the oral examinations of the Royal College of Veterinary Surgeons were conducted within the Museum of the College.

The Board of Examiners included Mr. Geo. Fleming, LL.D.; Mr. J. Roalfe Cox, F.R.C.V.S., Prof. Duguid, F.R.C.V.S., Prof. Pritchard, M.R.C.V.S., and Mr. J. Vaughan, F.R.C.V.S., and Mr. Finlay Dun, F.R.C.V.S., London; Mr. W. A. Taylor, F.R.C.V.S., Manchester; Mr. Geo. A. Banham, F.R.C.V.S., Cambridge; Mr. Archd. Robinson, M.R.C.V.S., Greenock; and Mr. W. B. Walters, F.R.C.V.S., Army Veterinary Department. The following gentlemen were also present as *ex officio* members:—Principal M'Call, Professors Cooke and Macqueen, Glasgow Veterinary College.

Twenty-two students presented themselves for the first examination, and of this number seventeen passed very creditably, viz.:—Messrs. Edwin Sayer, Kent; Wm. Hodgson, Cumberland; Hugh O. Richard, Merioneth; Wm. Ferguson, Greenock; Thos. Dobie, Birkenhead; John M'Kinna, New Galloway; Donald Macintyre, Argyll; David Weir, Ochiltree; Wm. Carruthers, Lesmahagow; Thomas F. Renehan, co. Kilkenny; D. J. M'Cambridge, co. Antrim; Richard Hamilton, Ayr; John A. Cunningham, Glasgow; Charles J. Doyle, co. Dublin; Hugh Farquhar, Kilmarnock; Andrew Reid, Ayrshire; and John Nicholson, Thornliebank.

Eight students also presented themselves for the second examination, of whom the following gentlemen passed:—Messrs.

* Marked thus, passed with *Great Credit.*
† Marked thus, passed with *Very Great Credit.*

George Gibson, Hull; Donald M'Lardy, Brodick; Robert M'G. Malloch, Braco; James G. Deans, Paisley; and George O. Macgregor, Bowling.

The following gentlemen obtained the membership diploma of the Royal College of Veterinary Surgeons:—Mr. John J. Ross, Ballymena, Ireland; and Mr. Gordon Frew, Glasgow.

Medals granted by the Highland and Agricultural Society of Scotland and Principal M'Call, and Certificates of Merit by the College, were awarded in the different branches of study as follows:

Botany.—Silver Medal (H. and A. S. of S.), Mr. Edwin Sayer; first class certificates, Messrs. Nicholson and M'Kinna; second class certificates, Messrs. Carruthers and Cunningham.

Chemistry.—Silver Medal (H. and A. S. of S.), Mr. Edwin Sayer; first class certificates, Messrs. Doyle and Richards; second class certificates, Messrs. Farquhar, Weir, and Carruthers.

Materia Medica.—Silver medal (H. and A. S. of S.), Mr. John M'Kinna; first class certificates, Messrs. Carruthers, Cunningham, and Sayer; second class certificates, Messrs. Weir, Wooley, and Reid.

Junior Anatomy.—First class certificates, Mr. William Ward; second class certificates, Messrs. Cunningham and Sayer.

Best Oral Examination on Botany, Chemistry, and Materia Medica.—Gold medal (Principal M'Call), Mr. Edwin Sayer.

At the close of the examinations the President of the Royal College of Veterinary Surgeons (Mr. George Fleming, LL.D.) intimated that Messrs. Doyle and M'Cambridge had passed with "great credit," and that Mr. Edwin Sayer had succeeded in passing with the honorary distinction of "very great credit." —*North Briton Daily Mail*, Glasgow, 3rd August, 1883.

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## Veterinary Jurisprudence.

### FOOT-AND-MOUTH DISEASE CASE.

#### THE ACTION AGAINST THE MAGISTRATES.

#### INTERLOCUTOR BY SHERIFF CLARK.

Some time ago Mr. William Harkness, of the Dead-Meat Market, sued the Lord Provost, Magistrates, and Town Council of Glasgow, acting as the Local Authority under the Contagious Diseases (Animals) Act, for £9 19s. 7d., being loss, injury, and

damage sustained by him through the defenders' inspector having, on the 11th and 13th February last, seized and condemned portions of fourteen bullocks belonging to pursuer, which he had slaughtered in Moore-street slaughter-house, the condemned portions being boiled down and the proceeds confiscated. Sheriff-Substitute Mair, after hearing evidence on the 7th April, found the defenders liable to the pursuer in expenses. The defenders lodged an appeal, and Sheriff-Principal Clark issued the following interlocutor yesterday, in which he finds neither party entitled to expenses:

Having heard parties' procurators, and considered the evidence and whole process: Finds that the portions of the bullocks in question were seized and carried away from the pursuer's custody or possession, and boiled down as being more or less affected with the foot-and-mouth disease, and unfit for human food: Finds that the defenders are responsible for these proceedings, and that, technically, there was a departure from the statutory provisions and rules applicable thereto: Finds, however, that the portions of the animals so carried off and boiled down were unfit for human consumption, the purpose to which the pursuer intended to apply them; that consequently no damages are proved: Therefore recalls the interlocutor appealed against, and assoilzies the defenders from the conclusions of the summons, but in the special circumstances finds neither party entitled to expenses, and decerns.

Note.—I am at one with the Sheriff-Substitute in holding that the course adopted was irregular and technically illegal in seizing and boiling down the portions of the bullocks in question, and that the defenders, charged as they are with and responsible for carrying out the statutory provisions, are responsible therefor. The portions of meat alleged to have been affected ought to have been brought before and adjudicated upon by the proper magistrate, or the mode of submitting them to two respectable dealers in the trade should have been followed. Nor can I admit that the mere imminence of a serious epidemic of foot-and-mouth disease could in any way justify a departure from the plain statutory provisions. At the same time, the important question remains, Has the pursuer succeeded in proving loss or injury? for unless he can establish this it necessarily follows that no damages can be assessed. With this question the greater part of the voluminous evidence that has been led on both sides deals, and it will be necessary to consider that evidence at some length. Now, in the first place, it seems to me proved that all the separate portions or organs of the bullocks for which damages are claimed were more or less affected by manifestations of the disease. By a skilful cross-examination it was attempted to show that some part at least of the portions dealt with as diseased did not belong to the pursuer. On a careful and repeated perusal of the evidence, I am satisfied that there is nothing in this contention, and that all the portions for

which damages are claimed were really examined, and found to be more or less affected by the disease. Some of them were very considerably affected, others at certain parts only. The pursuer, however, contends—and this indeed forms the main contention—that though an organ—a tongue, for example, or a head—is affected at one point, the whole organ is not to be condemned, but that the diseased part having been excised, the remainder is quite wholesome, and may be sold for human food without let or hindrance, as much as any other part of the carcase. Of course, if this could be made out the pursuer would be entitled to recover for the loss of price which the remainder of the organs, after the excision of the diseased part, would have brought when exposed in the market. Now, it is admitted on all hands by the veterinary witnesses that the foot-and-mouth disease is a blood-poison, and that it is one of the most infectious and contagious diseases to which cattle are liable. It is also proved that it eliminates itself by certain organs, such as the tongue, the mucous membrane—including the stomach, the palate, the feet—in short, by all the organs for the value of which the present action is brought. From this one would naturally conclude that these organs are seats of the disease, and that when the outward manifestations of the disease, such as blisters or excoriation, appear, or any one of them, the whole of that organ is more or less charged with the disease. But this is not a mere layman's inference. It is clearly established by veterinary evidence; even Professor Walley, who is most favorable to pursuer, does not seem to deny it in theory, but bases his view on the assumption that when the diseased part of an organ has been cut away the remainder is fit enough for human food. That matter, however, is not one as to which his opinion can be taken as conclusive when it is contradicted by medical men of eminence intimately acquainted with human physiology, and perfectly able to state whether food of this kind can be safely taken by human beings. Now, it is a remarkable fact that there is not a single medical man adduced who can be got to say that every portion of an organ upon a part of which the symptoms of the disease have manifested themselves can be consumed by human beings without risk. Their evidence is indeed strongly the other way. Professor M'Kendrick, Dr. Russell, Dr. Littlejohn, Professor Cleland—all men of great eminence in the profession—unite in condemning in the strongest terms the practice of using for human food the remains of organs from which the diseased parts have been excised. Dr. Littlejohn goes so far as to say that not the organ affected only, but the whole carcase of the animal should be declared unfit for human food; and Professor Cleland boldly says—"I think it is a very dreadful thing selling these things to people without letting them know." It should also be noted that Principal M'Call and Professor Williams—both men of recognised eminence as veterinarians, the latter a witness for the pursuer—strongly condemn the practice contended for by

the pursuer. Professor Williams says—"If the tongue is affected I should condemn the tongue." Question—"When you say affected, what do you mean?" Answer—"If it is at all excoriated; if it is raw in any way; if there have been blisters upon it." Question—"That is a question of more or less, I suppose?" Answer—No; I should condemn the whole tongue." Principal M'Call is equally emphatic, and gives certain rules, which he only regrets he has not the power to enforce, but which, if enforced, would entirely exclude the pursuer's contention in practice. The pursuer, finding that his contention could not be sustained by the opinions of experts, betakes himself to the alleged fact that the practice of the Edinburgh Slaughter-house is in his favour. It is much to be regretted that the principal officer of that place, Mr. Sommerville, whose name is mentioned as the best authority, was not called by the pursuer. The reason, however, suggests itself when it is found that Dr. Littlejohn denies that any such custom exists. I take it, therefore, to be clear that where an organ such as those in question is affected in any one part it is the opinion of the most reliable medical and veterinary experts that the whole organ is unfit for human food. Indeed, I think this is so clear, after the evidence that has been adduced in this case, that any parties in the position of the defenders authorising or sanctioning a contrary practice would assume a very grave and serious responsibility. Now, what was it that the pursuer proposed to do, and would have done but for the action of the defenders, irregular though in technical details that action may have been? Plainly to have sold for human food what remained of the tongue or other organ after the ulcerated part had been cut off. The pursuer makes no difficulty about this. Both he and his witness Brechin—another butcher—admit this to be their practice. The pursuer, indeed, coolly made this the basis of his plaint, and asks the Court to assess damages on the ground of his not having been allowed to do this. These diseased organs were to have been sold without any advertisement to the public of their being part of diseased tissue; they were to have been sold as sound, good meat. No wonder that Dr. Cleland characterised such a suggestion as dreadful, and yet it is for not having been allowed to do this that damages are claimed. It was suggested at debate that the pursuer should at least have the value of the articles so boiled down for tallow. In answer to this it may be said that he makes no such claim in his deposition; that it is not the ground of his alleged damage; and, besides, it is proved that after deducting the cost of the boiling-down process nothing appreciable would remain. After what is stated above I think it approaching the ludicrous to contend that any damages are proved. The pursuer has much reason to be thankful for any accident or irregular act that put it out of his power to sell as wholesome food what might have produced the most serious consequences to the unsuspecting public. It

is unnecessary to say why I have found no expenses due to the pursuer. Why they have not been awarded to the defenders is because their procedure, though in its results beneficial to the public and also to the pursuer, involved a legal irregularity which might with ordinary care have been avoided.

Mr. J. B. P. Robinson and Mr. Gerard L. Crole, advocates, instructed by Mr. James Colquhoun, writer, appeared for pursuer; and Mr. Alexander U , advocate, instructed by Mr. George Paterson, for defenders.—*Glasgow News*, 24th July, 1883.

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## A CASE OF MELANOSIS—PROSECUTION.

At the Isle of Wight Petty Sessions, held at Newport, before Mr. F. White-Popham (chairman), Sir Graham Hammond Græme, Captain Marcus Lowther, R.N., and Colonel Browne, V.C., William Lucas, carter in the employ of William Johnson, of Newport, was charged with cruelly ill-treating a grey mare by working it whilst in an unfit state.

Mr. H. R. Hooper prosecuted on behalf of the Royal Society for the Prevention of Cruelty to Animals; and Mr. Bull defended.

*Mr. Hooper*, in the course of his opening remarks, said that the animal was found to be suffering from melanotic tumours, a disease peculiar to grey horses, for which no radical cure had yet been discovered.

*P. C. Morris* stated that on the 12th of July, when on duty near Freshwater-gate, he saw the defendant driving a grey mare attached to a heavy four-wheeled van. Witness examined the mare, found the stump and under part of the tail covered with sores, and black matter and blood oozing from them. Witness pointed these out to defendant, who said there was no blood coming from them. Witness held his hand and allowed the matter to drop upon it. Defendant said it was raining, but witness told him it did not rain blood in Freshwater. He told defendant not to work it any longer, and had it taken to a veterinary surgeon.

*John Burden*, a registered veterinary practitioner, of Freshwater, stated that he had examined the grey mare and found a tumour the size of a gallon loaf upon it. Blood was flowing from the wound, but no matter. No doubt the animal had been suffering slight pain, and it flinched upon his touching the affected part. The melanotic tumour had been accumulating and increasing in size during the past seven years, and to work the animal for any long distance would give it pain.

By *Mr. Bull:* It would give the animal pain to work it from Newport to Freshwater with a light load. The disease was in

the last stage and the animal unfit for work; he should recommend that the mare should be killed.

*Mr. Bull* addressed the Bench in defence, and after remarking that it had been worked every day for the past five years, said the owner was willing to have it slaughtered. He called—

*Joseph Gould*, veterinary surgeon, who stated that he had known the mare for the past eight or nine years. Knowing the nature of the disease, he was of opinion that with neglect it would be cruel to work her, but under the treatment he had prescribed it would not. In his opinion the disease was far from the last stage.

By *Mr. Hooper:* He had not seen the mare for three weeks. If the tumour was in the state as described by the witness Burden, he should certainly condemn the animal.

*Edwin Shearsmith*, Inspector of the R.S.P.C.A., remembered seeing the mare sold some time since, but did not remember saying that she was workable.

By *Mr. Hooper:* The tumour was of the dimensions stated by Mr. Burden.

The Bench fined the defendant 5s. with 7s. costs, the Chairman expressing a hope that the animal would be destroyed.

*Mr. Bull* stated it would be.

William Johnson, the owner of the mare, was then charged with causing it to be worked; the evidence given in the previous case was taken, and the local inspector, Mr. Shearsmith, said he saw Mr. Johnson on the 17th, and after he told him the nature of the charge against him the defendant said he knew the mare was in that condition, but did not think she was so bad. She should be shot. He added that he was responsible for the mare being worked.

The *Chairman* said in consideration of the fact that the mare was to be destroyed, a fine of 5s. only, with 17s. 6d. costs (including the veterinary surgeon's fees), was inflicted.

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## Parliamentary Intelligence.

### PLEURO-PNEUMONIA.

HOUSE OF COMMONS, *Friday, August 17th.*

*Mr. Duckham* asked the Chancellor of the Duchy of Lancaster whether the Privy Council would now put in force the provisions of the Contagious Diseases (Animals) Act, 1878, in order to stamp out pleuro-pneumonia from the herds of the United Kingdom, the disease being now confined to a very few herds.

*Mr. Dodson* was glad to say that the disease had been steadily declining since the passing of the Act of 1878, but it was much

to be desired that the local authorities should resort more freely to the power they possessed under Section 21 of slaughtering healthy animals which had been in contact with diseased animals. The Privy Council were constantly calling the attention of the local authorities to the expediency of adopting that course, the Privy Council themselves having no power to order the slaughter of healthy animals. Mr. Dodson, replying to the same hon. member, said it was true that the Canadian animals found in the Bristol market affected with foot-and-mouth disease came from Liverpool. Wherever landed they could not have got out of the foreign animals' landing place unless they had been pronounced free from disease. He was informed that in the market at Liverpool they had been in contact with animals suffering from foot-and-mouth disease, which had come from Ireland. Replying to a further question by the hon. member, Mr. Dodson said it was no doubt the fact that foot-and-mouth disease had been exported from this country to America. The beginning of it, however, was that in 1881 this country received a cargo from America suffering from foot-and-mouth disease, and shortly afterwards they heard that a cargo of Jersey animals had been shipped to America in the same vessel. The authorities in America were telegraphed to, and on the arrival of the vessel the cattle were found to be affected with the disease. A case had occurred during the present year where a cargo of Channel Island animals landed at Baltimore were found to be affected with foot-and-mouth disease. Although the period of incubation only extended over three or four days, yet it might take two or three weeks to pass through a herd of animals, and therefore that accounted for the spreading of the disease during the passage of nine days across the Atlantic. As regarded the ninety days' quarantine, that quarantine did not give security against indirect conveyance of the disease by men and things taken out of the quarantine yard. It only gave security against contagion conveyed immediately from animal to animal.

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## FOOT-AND-MOUTH DISEASE.

*Mr. Duckham* asked the Chancellor of the Duchy of Lancaster whether the report contained in the *Times* of the 15th inst. of twelve Canadian cattle being conveyed from Liverpool to Bristol while suffering from foot-and-mouth disease was correct; and, if so, what steps would be taken to prevent a recurrence of such a reckless means of spreading disease among the herds and flocks of the country.

*Mr. Dodson.*—The Canadian animals found in Bristol market affected with foot-and-mouth disease came from Liverpool. Wherever landed they could not have got out of the foreign animals' landing place unless they were free from disease. We are informed that they had been in contact in Liverpool market

with Irish cattle suffering from foot-and-mouth disease. They arrived at Bristol on the 8th inst., and the disease appeared on the 11th inst. All have been slaughtered since.

*Mr. Duckham* asked the Chancellor of the Duchy of Lancaster whether any inquiry had been made to ascertain the correctness of the following statement contained in a letter to the *Times* of the 30th ult., from Mr. Moffatt, Agent of the United States Department of Agriculture:—"For two years not a case of disease (foot-and-mouth) was brought to the attention of the United States Commission except in two instances of freshly imported consignments from Great Britain;" and that, seeing that the disease rarely exceeded three days in developing itself, and as the passage occupied an average of nine days, and as upon arrival animals are subjected to ninety days' quarantine, whether he could explain how it was possible that animals imported from Great Britain could convey it into that country.

*Mr. Dodson.*—No inquiry was necessary, because it is an undoubted fact that foot-and-mouth disease has been exported from this country into America. In 1881 we received a cargo from America suffering from foot-and-mouth disease, and shortly afterwards we heard that a cargo of Jersey animals had been shipped for America in the same vessel. We telegraphed the fact to the American Government, and on the arrival of the vessel in America the cattle were found to be affected with the disease. A similar case occurred during this year, when a cargo of Channel Islands cattle landed at Baltimore were found to be affected with foot-and-mouth disease. The incubation of the disease is from two to four days, but it takes from two to four weeks to pass through a herd, according to the number, and there is nothing strange in its lasting during a voyage across the Atlantic. The quarantine of ninety days is no security against the indirect introduction of the disease by means of persons and things in the quarantine station passing out of it. It only secures safety from the particular animals placed in quarantine.

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## BEQUESTS TO THE DICK VETERINARY COLLEGE AND THE UNIVERSITY OF EDINBURGH BY THE LATE MISS DICK.

UNDER the will of Miss Mary Dick, sister of the late Professor Dick, founder of the Edinburgh Veterinary College of that name, it is, we understand, provided, after the payment of £100 to the Society for the Benefit of Widows of Veterinary Surgeons and certain other legacies, that the residue of her estate, with the accumulations of the free income to be derived from the same, hall be held by the trustees of the testatrix until it amounts to

£20,000, when it shall be divided into two equal portions, £10,000 being applied in the furtherance of veterinary science in connection with the Veterinary College in Clyde Street, and the other £10,000 in the founding of a Professorship, either of comparative anatomy or of surgical anatomy, whichever of these Chairs her trustees shall consider to be most required in the interests of medical science, in the University of Edinburgh, "in memory of the late Dr. John Barclay and the late Professor John Goodsir," the testatrix adding that she was "led to found this Professorship in memory of these gentlemen, in respect of the great regard that my late brother entertained for them, and that they, I believe, entertained for him." While declaring that the period of accumulation shall not exceed twenty-one years from the date of her death, the testatrix provides that in the event of the £20,000 being reached before the expiry of that period, her trustees shall have full power, after making the division, to continue to hold both or either £10,000 for twenty-one years, and until such an amount is accumulated as may be, in the opinion of her trustees, for the most advantageous promotion of the objects contemplated. In a codicil to her will the testatrix states that she had erected certain houses at the Kirkton, Burntisland, on the property belonging to her brother's trustees, and life-rented by her at a total cost of £800; but she had not then got any title to the ground on which the houses were built; and, in the event of her death before getting such title, and the same thus falling to her late brother's trustees, the sum of £800 more shall be employed by her trustees in the furtherance of comparative anatomy and surgery than in the furtherance of veterinary science. Of the trustees under the will, Professor Turner, Professor Chiene, and Professor M'Kendrick (Glasgow) are declared by the testatrix to have been appointed "in consequence of their special qualifications to carry out" her wishes "in regard to the disposal of the residue" of her estate.—*Scotsman*.

## OBITUARY.

We regret to announce the death of Henry Thomas Hodgkinson, M.R.C.V.S., Rochdale, which took place on the 24th of June, after a few hours' illness. His diploma is dated 19th of April, 1877.

THE

# VETERINARIAN.

VOL. LVI. No. 670. OCTOBER, 1883. Fourth Series, No. 346.

## Communications and Cases.

### ON PLANTS IN RELATION TO ANIMALS.

By Professor JAMES BUCKMAN, F.G.S., F.L.S., &c.

(*Continued from* p. 598.)

THE natural order which we have now to review is that of the VALERIANACEÆ—*Valerianworts*. Of these we have two genera, by some augmented to three, namely:

1. VALERIANA—*Valerians*. Tube of the corolla, slightly gibbous.

2. VALERIANELLA—*Lamb's Lettuce*. Corolla, funnel-shaped not spurred.

3. CENTRANTHUS—*Red Valerian*. Spurred near the base.

Of these we will consider the last first, as it is decidedly near the true Valerian. It is termed Greek Valerian, but its claim to be considered a native species may perhaps be settled by the consideration that, as a rule, it only occurs about old buildings or rocks very close to garden occupation. It is not considered at all in the light of a medicine, not so, however, the next form, namely—"VALERIANA OFFICINALIS. Rootstock usually stoloniferous. Root-fibres slightly thickened, cylindrical, tapering. Stem erect, deeply striated, glabrous or pubescent towards the base. Leaves all pinnate, with four to ten pairs of leaflets; leaflets ovate-lanceolate or strap-shaped, the terminal

one not conspicuously larger than the others; lower leaves with broader leaflets than the upper ones. Flowers all perfect in a compound corymbose cyme. Fruit glabrous.

"The derivation of the name of this genus of plants is differently given. It is said by some authors to have been named after Valerias, who first used it in medicine; while others derive the name from the word *valere*, to be in health, on account of its medicinal qualities." *

We have before us a copy of 'A New Family Herbal or popular account of the Natures and Properties of the various Plants used in Medicines, Diet, and the Arts,' by Robert J. Thornton, M.D.

The plants are engraved on wood by no less an artist than Thomas Bewick; from this book we quote the following:

"This plant is perennial, and varies in its appearance and sensible qualities, according to the situation in which it grows. In marshes and shady places its leaves are broader, on dry heaths and high pastures they are narrower. The roots produced in low watery grounds have a remarkably faint smell in comparison of the others, and sometimes scarcely any. The roots taken up in autumn or winter have also much stronger sensible qualities than those collected in spring and summer. The root consists of a number of strings or fibres matted together, issuing from one common head, of a whitish or pale brownish colour. Its smell is strong, like a mixture of aromatics with fetids; the taste unpleasantly warm, bitterish, and subacrid. Neumann got from 480 grains of the dry root 186 alcoholic and 74 watery extracts; and inversely, 261 watery and 5 alcoholic. The distilled alcohol was slightly, the water strongly, impregnated with the smell of the Valerian, but no separable oil was obtained.

*Medicinal Use.*

Wild Valerian is a medicine of great use in nervous disorders, and is particularly serviceable in epilepsies proceeding from a debility of the nervous system. Some recommend it as procuring sleep, particularly in fever, even when opium fails; but it is principally useful in affections of the hysterical kind. The common dose is from a scruple to a drachm in powder; and in infusion from one to two drachms. Its unpleasant flavour is most effectually concealed by a suitable addition of mace. As its virtues reside entirely in an essential oil, it should not be exhibited in decoction or watery extract. So far the Edinburgh Dispensatory, Valerian is supposed to be the φδ, Phu, of Dioscorides and the ancients, from Greek word φυ, abominable, on account of its horrid smell; although so extremely agreeable to cats, that the labels in apothecaries' shops are scratched off

* 'English Botany,' vol. iv, p. 235.

by them; and it is said also to attract the rat. Fabius Columna, an Italian nobleman, engaged in political affairs, had an epilepsy from his birth, which the physicians were unable to cure. Being entirely worn out with the disease, he began the study of the ancient botanical writers, and in his research found that it was cured by the Valerian root. Hence he began the trial, and was soon completely restored. He became a famous botanical writer, illustrating his work with admirable plates; and he mentions that by the same means he has cured several others labouring under the same disease. He advises to gather the root before the time of flowering, to reduce the same into powder, and take it in water, wine or milk, on six successive mornings, on an empty stomach; whence sweats will break out, and often the bowels will become relaxed; which are excellent signs. Dominicus Panarolus, fifty years afterwards, reports that he cured three cases of epilepsy. To these may be added many other instances of good effects in this disease, published by Cruger, Schuckman, Riverius, Sylvius, Marchant, Chornel, Sauvage, Tissot and Haller. Whytt, who joined its exhibition with manna, experienced its good effect in epilepsy. Fordyce recommends it highly in hemicrania, a pain affecting one side of the head only. Camerarius asserts that he found it very serviceable in jaundice, also in asthma, in which latter disease he accompanied it with a grain of opium. Cullen mentions that it is serviceable in hysteria and other spasmodic affections; and where it failed of producing any good, it arose from these disorders not being primary nervous affections, or from the badness of the drug. Haller mentions also his success in hysteria. Boerhaave pronounces that it is good against all diseases of the thorax, stomach, and uterus, wonderfully increasing the discharge from the latter, when too sparing, using an ounce or two of the bruised root as tea, sweetened with honey; he likewise mentions that it is an excellent vermifuge. He adds that, if the fresh leaves be bruised with wine and applied to the parts, it is excellent in contusions; that thus it dissipates scirrhous tumours without suppuration, and, when suppuration has taken place soon makes them heal; hence the common people always apply them in sordid ulcers. Morgan relates that, mixed with guaiacum, even only outwardly applied, it has a singular efficacy in glandular obstructions. Applied outwardly the leaves are said to strengthen the sight, and remove specks on the eyes (maculas oculorum abstergit); and as an amulet there are people who think it successful against the ague (adsunt auctores qui radicem pro amuleto febris quotidianæ habent, carnique collo in homo finem suspendunt) Boerhaave. According to Boding, it is useful in tenesmus. If we take the opposite side, Woodville

says that it has been given in the extent of two ounces a day without effect, and "from our own experience we are warranted in saying it will be seldom found to answer the expectation of the prescriber." As far as my practice has gone I have found it successful in several cases of epilepsy, and a good nervous medicine; and in phthisis pulmonalis (consumption) a tea made of it for breakfast has done considerable service. It merits yet a place in the Materia Medica, but what rank remains to be explored. The oil of Valerian deserves a trial in epilepsy, being said to have produced several extraordinary cures."*

There is no doubt but that Valerian has always had a high repute as a medicine, and the extasy which are excited in different animals by its strong perfume is very remarkable. Curiously enough it is said to be attractive to the cat and the rat, whilst even some insects are said to be attracted by its perfume. This particular property exists to only a slight extent in the stems and foliage, but for the most part in the strong roots, which emit their peculiar flavour the moment they are drawn from the earth.

In medicine the English Valerian is most esteemed; it is abundant in Hampshire, formerly in Kent and Essex, and the wild plant is to be preferred to that which is cultivated for medical use. It is to be regretted that the root is often confounded or fraudulently adulterated with that of *Valeriana dioica*, which is smaller, and of much feebler odour, and that of the genus *Urbanum* or Avens, which is pleasantly aromatic. Much more serious is the confusion, possibly accidental or merely from ignorance of the genuine root with those of several species of Ranunculus; but the absence of the peculiar odour of Valerian is a sufficient test in most cases. Valerian is considered to be a *cerebro-spinal* stimulant, large doses of it causing marked excitement in the nervous system not only of the human race but also of cats, which are extremely fond of it. It is scarcely possible to keep a plant of Valerian in a garden which these animals frequent, after the leaves or root have been bruised or disturbed in any way, so as to evolve the odour of the herb. It is equally attractive to rats, and is often used by the destroyers of these vermin to bait their traps. Although the odour is so disagreeable to Europeans, some of the Asiatic nations prize it as a delicious perfume, and employ it in the manufacture of their most valued scents. In the slighter forms of nervous disease, not dependent on any change of structure of the brain or spinal cord, Valerian is of great utility. Valerian in powder greatly heightens the tonic power of the disulphate of quinine as a medicine. Combined with various bases, the

* 'Thornton's Herbal,' 1810, pp. 35, 36.

acid furnishes compounds reputed as of great value as antispasmodics; such as valerianate of zinc, iron, &c.

We seem then to have in this Valerian a powerful and salutary medicine, which, however, does not find a place in the veterinary Pharmacopœias. Still we doubt not that discoveries have yet to be made which will more fully demonstrate the value of so active a remedial agent.

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## INCONTINENCE OF URINE IN A COW—TRAUMATIC ORIGIN.

By A. E. Macgillivray, M.R.C.V.S., Banff, N.B.

About three weeks ago I was asked to attend at a farm, some seven miles out, in reference to a rather valuable cow labouring under some serious disorder of the urinary organs. On calling next day I found my patient apparently in pretty fair health, with the exception of an almost constant dribbling away of urine nearly as clear as spring water. The owner informed me that this abnormal state of matters had been observed ever since the cow was last served with the bull—about seven weeks before, and that the bull had been along with her in a field, and there was no knowing how often she had been served.

On examination I found the vulva slightly inflamed from the constant dribbling away of urine, but as I had neither speculum nor sound with me, and as I did not see fit to explore passage with my hand, I adopted no treatment, merely saying that my patient had either, during coition or othewise, been injured about the urethra or that a stone existed in the bladder.

Several days after I again visited my patient and found her considerably reduced in condition, off her food, and more inflamed about vulva, I introduced a sound through urethra into bladder, but found no calculus. I then examined the passage all round the meatus urinarius with a large speculum, and at once discovered a rent or second opening into urethra; this rent was in the upper part of the *cul-de-sac* which is found below the meatus urinarius of bovines. As a matter of course this abnormal opening into urethra did not account for the incontinence of urine, but it plainly showed that the cow had been injured during coition or otherwise.

Knowing now, however, that the incontinence of urine was of traumatic origin, and although not altogether exactly certain

of what lesion or lesions might exist beyond the meatus urinarius, I thought it useless to adopt any curative or even palliative treatment, merely advising owner to keep cow entirely inside, and give her as rich food as possible with a view to fattening her.

Within four days she was sent to the butcher, and, as I had most particularly requested, the whole of the urinary and generative organs were carefully cut out and sent on *per rail* to me. *Post-mortem* appearances were as follows, namely, uterus and appendages healthy, and contained a two-months' fœtus; bladder greatly contracted, in fact resembling a hard round ball; the peritoneal coat at fundus of bladder very much inflamed; all three coats of bladder greatly thickened; sphincter vesicæ as well as whole urethral canal very much relaxed; heavy deposit of thickened inodourless mucus inside bladder at fundus; submucous inflammatory appearances apparent through whole course of urethral canal; valves at meatus slightly ragged at edges; abnormal rent in lower valve, well down in upper *cul-de-sac*, edges of this rent completely healed, leaving rent wide open, so that, with the relaxed sphincter vesicæ and urethral canal, I believe the urine escaped continuously from the abnormal opening which I am certain must have been always patent.

The case above detailed is rather unique in the annals of bovine practice, a fact which renders the want of certainty as to its origin the more to be regretted. One would be inclined to suppose it scarcely possible, under any circumstances, that the bull's penis could have done the mischief during attempted copulation, and yet greater impossibilities have often occurred. Of the truth of one thing, however, we may rest assured, and that is that the injury did result either from the misdirection of the bull's penis or from the introduction of some foreign body, and in either case the wound resulting might satisfactorily account for the lesions and consequent symptoms existing in the instance here recorded. Finally, by whatever agent, the bladder, sphincter, urethra, and lower valve at meatus, must have been all injured at one and the same time.

# REMARKABLE CASE OF ENLARGEMENT OF THE STOMACH.

By W. Fitzroy Phillpot, Veterinary Student, Royal Veterinary College, London.

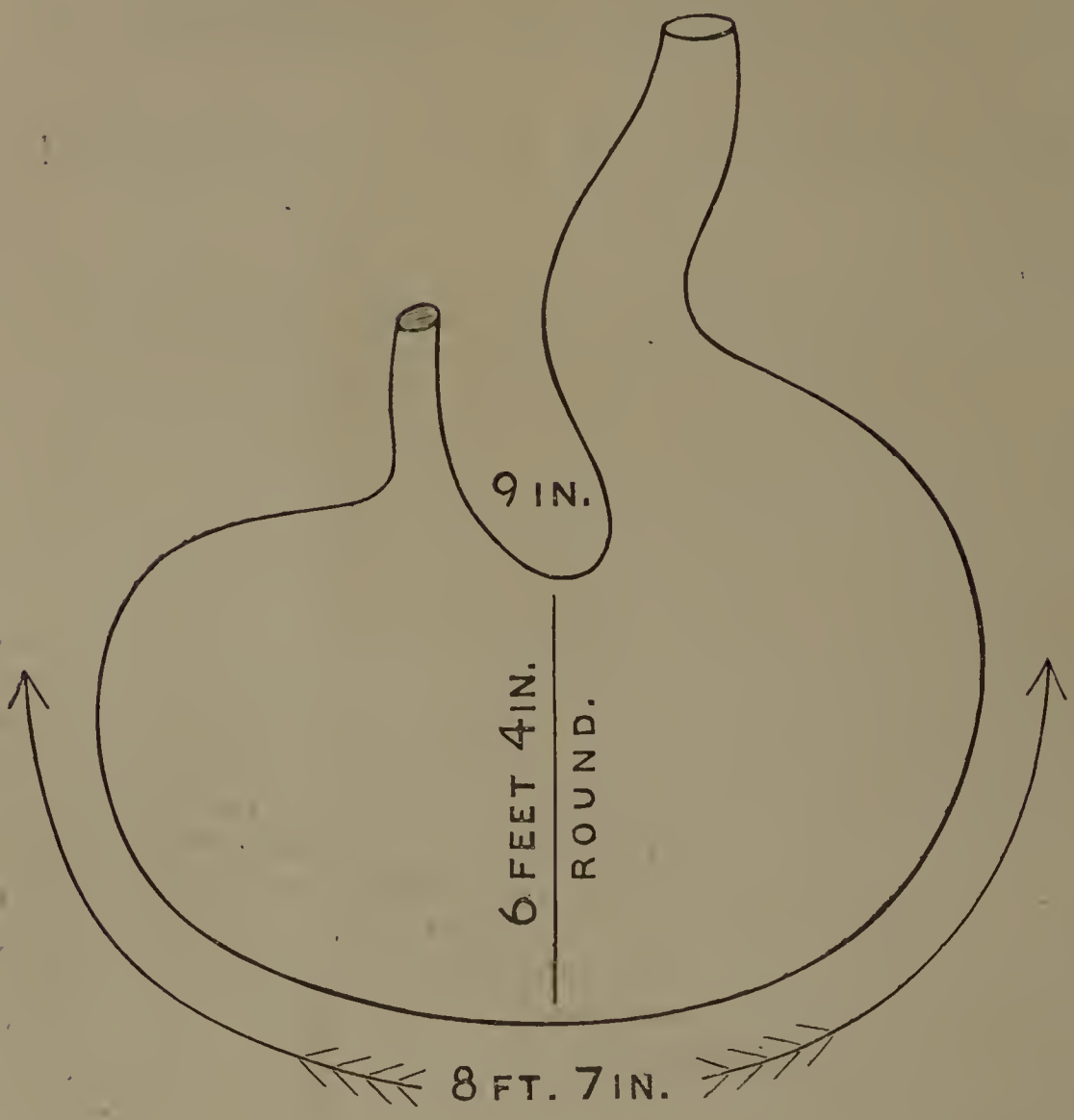
The following interesting case came under my notice whilst I was assistant with Mr. A. Green, M.R.C.V.S., Dudley, who, although having a very large cart-horse practice, tells me that such a case had never come under his notice before, consequently I send it for insertion in your next number thinking that it might be of some interest to the profession.

An aged, roan cart gelding, sixteen hands one inch high, had for the last seven years been occasionally treated for slight attacks of indigestion. Twelve months ago the owner consulted Mr. Green as to his frequent griping pains. The attacks of diarrhœa and pendulous condition of the animal's abdomen, drew from the owner the expression that he wanted Mr. Green to try and get his belly up, which I may say always had the appearance of a mare in foal. Mr. Green told me that he considered the case to be one of debility of the intestines, and prescribed Ferri Sulph. ʒij, Quiniæ Sulph. xx grs. daily. The purging ceased, and the animal improved in condition, but the pendulous condition of the abdomen remained, and the horse occasionally had attacks of indigestion. Nevertheless, as he worked fairly well, he was seen no more professionally until the week he was brought to the infirmary. I found him scouring, surface of body cold, pulse imperceptible, and breathing quick; tympanitis was also present to a great extent; in fact he was so near death that no medicine was given. Upon a *post-mortem* examination I found the coats of the stomach had become attenuated to such a degree that they were not thicker than a piece of ordinary writing paper, very pale, and semi-transparent. The organ itself had increased in size to the dimensions given below:

Measurement round the large curvature from œsophagus to the pylorus eight feet seven inches. Measurement of lesser curvature nine inches, making altogether nine feet four inches. Circumference six feet four inches. Of course these measurements were taken before the ingesta were removed. Weight of stomach when empty twenty-three pounds. Weight of ingesta contained therein 157 pounds.

I may add that the whole of the large intestines were increased in calibre being much overloaded; their coats were thin

and very pale. The only wonder to me is that they had not ruptured long ago.




## Pathological Contributions.

### PLEURO-PNEUMONIA.

The fresh outbreaks of this disease and also the animals attacked are steadily decreasing in number in Great Britain. During the four weeks ended August 25th, 1883, the total number of fresh outbreaks reported was 29, and the number of cattle attacked 66; whereas, in the corresponding period of 1882, there were 40 fresh outbreaks reported and 85 animals attacked, and in the four weeks ended August 27th, 1881, the fresh outbreaks were 52, and the cattle attacked 176.

## FOOT-AND-MOUTH DISEASE.

This disease prevails to a very serious extent and has spread very rapidly in England and Wales during August and September. In the four weeks ending August 25th, the fresh outbreaks reported were 1338 in number, and 30,985 animals were attacked, 82 of which died. In the week ending September 1st, the outbreaks which had been 627 in the previous week rose to 1290, and the number of animals attacked increased from 10,570 to 23,270, and in the following week there was a still further increase of outbreaks to 1508, and of animals attacked to 30,371; a slight decrease took place in the week ending September 15th, when the outbreaks were 1110 and the number of animals attacked 28,735, but with this decrease in numbers there was a very marked increased mortality, the number of deaths being 318 as compared with 179 during the previous week.

The wide distribution of the disease in England is well shown by the return published in the *London Gazette*, of September 21st, from which it appears that there were only six counties in the whole of England that had no foot-and-mouth disease during the previous week, these were Cumberland, Devon, Dorset, Hereford, Somerset and Westmoreland.

In Wales the disease existed in six counties, viz. Anglesey, Carnarvon, Denbigh, Flint, Glamorgan and Radnor.

The return above quoted shows that this disease existed in only two counties in Scotland, Ayr and Perth, and that two fresh outbreaks had occurred during the week, these were both in the former country, while in the latter there was only one diseased centre.

In Ireland the disease is still increasing as will be seen from the following figures quoted from the officially published returns. During the week ending August 25th, the outbreaks were 268, in the following week 356, and in the week ending September 8th, they were 359.

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## SWINE-FEVER.

In Great Britain during the four weeks ended August 25th, 1883, there were reported 251 outbreaks of this disease, 1162 swine were attacked, 189 of which died. In the corresponding period of last year the outbreaks were 313; swine attacked, 1343, of which 227 died.

## Facts and Observations.

Russia's Horse Reserve.—Austria-Hungary is said to possess 3,569,000 horses, Germany 3,352,000, France 3,000,000, Great Britain 2,790,000, and Italy 657,000; while in the Kirghiz steppes alone Russia possesses 4,000,000 riding horses. The excellent qualities of the Kirghiz horse have led to a proposal to use it for cavalry remounts. The provincial studs (says the *Pall Mall Gazette*), especially those of the Don, are in decadence; the price of horses is consequently rising, and the difficulty of procuring remounts is continually increasing. Sooner or later Russia must fall back on the studs of the steppes. The Kirghiz horses constitute a precious and abundant reserve. Most of these horses are small, intelligent, docile, of great speed, indefatigable, and very temperate, qualities which make them suitable for military service. The best are those belonging to the steppes of Orenburg and Turkestan; but only half of them are available for regular cavalry, the others being too small. It is also doubtful whether these horses, used to a dry, hot climate, and the herbage of the steppes, could bear the damp which prevails in the greater part of Western Russia.

Importation of Danish and Swedish Cattle.—Large numbers of Danish and Swedish cattle are imported into the Tyne, the average being considerably over 2,000 head per week. These importations are of all kinds, and are sent into Newcastle market, where, it appears, many of the most promising young bullocks are picked out by local farmers for grazing, and after being fattened are sold at a good profit. This is quite a new trade, and is assuming considerable proportions, and with the increasing quantity of home-bred stock promises well for the supply of beef; for another remarkable fact is that fewer calves have been offered for sale this season than ever was known in northern markets, farmers preferring to rear and feed than to selling them as veal. It need hardly be said that this grazing of Danish beasts, and the keeping back of calves for feeding, are not calculated to increase the demand for Irish beasts in the northern counties. At the same time, it is believed that a diminution of disease will be the result, Irish cattle, whether they deserve it or not, having lately acquired a very bad name in the north.—*Live Stock Journal.*

SHEEP MARKING SUBSTANCES.—Tar and many other substances injure the wool. The *Scientific American* gives the following waterproof branding ink:—Shellac, two ounces; borax, two ounces; water, twenty-five ounces; gum arabic, two ounces; lampblack sufficient. Boil the borax and shellac in water till they are dissolved, and withdraw from the fire. When the solution has become cold, complete twenty-five ounces with water, and add lampblack enough to bring the preparation to a suitable consistency. When it is to be used with a stencil it must be made thicker than when it is applied with a brush. The above gives a black ink; for red ink substitute Venetian red for lampblack; for blue, ultramarine, and for green a mixture of ultramarine and chrome yellow.

POISONING BY DISEASED MEAT.—Dr. Ruysch reports the poisoning of about two hundred persons in the town of Heesch, Holland, who had eaten the flesh of a cow that had died in giving birth to a calf, also the flesh of the still-born calf, and of another dead calf. All who had eaten the meat were taken ill, and three died. They suffered from severe gastric symptoms, chills, fever, headache, and great depression, so that the physicians supposed at first that they had to do with an epidemic of typhoid fever. Others presented the symptoms merely of gastro-enteritis. The nature of the poison in the flesh could not be clearly determined, as none of the animals had died from an infectious disease.

ETHER SPRAY IN NEURALGIA.—Dr. McColganan extols the ether spray in neuralgia, especially if facial; the cure is often permanent.—*Boston Journ. of Chemistry.*

THE EFFECTS OF VARIOUS MEDICINES ON THE SECRETION OF MILK.—Iodide of potassium diminishes, salicylic acid increases the quantity of milk secretion; alcohol, morphine and lead leave the quantity unchanged, while pilocarpine does not increase the secretion. Salicylic acid increases the amount of sugar in the milk, alcohol the fat; lead, morphia, and pilocarpine exercise no influence, while, on the other hand, iodide of potassium disturbs the entire milk glands. Alcohol does not go over to the milk; lead and salicylic acid only in traces.—M. Stumpf, *Deut. Arch. f. Klin. Med.*

A PROLIFIC SOW.—Mr. Charles Grimes, of Eye, Suffolk, has a sow which lately farrowed and brought forth 19 pigs, all of which are alive and healthy. This is the fourth farrow of this sow during the last two years, the total of the four farrows amounting to 79 pigs.

# THE VETERINARIAN, OCTOBER 1, 1883.

Ne quid falsi dicere audeat, ne quid veri non audeat.—CICERO.

## THE INTERNATIONAL VETERINARY CONGRESS AT BRUSSELS.

THERE was no lack of material for discussion at the meetings of the International Veterinary Congress during the week which ended on September the 15th last.

At the first meeting, on the morning of September the 10th, the inaugural ceremonies, including the reception of the delegates by the representative of the Minister of the Interior, who was unavoidably absent, occupied the time. At the second séance, in the afternoon of the same day, the subject of the Organisation of the Veterinary Service by the State was considered, and after discussion, during which several propositions were put to the meeting and rejected, it was decided by a large majority, on the motion of M. Bouley, that the Veterinary Service should utilise the greatest possible number of veterinary surgeons, should include the inspection of meat, of slaughter-houses and abattoirs, the inspection of breeding stock, the control of communes against losses from mortality among stock, and all matters connected with international arrangements for the prevention of the spreading of contagious diseases of animals.

Pleuro-pneumonia of the contagious form was the next subject for discussion; and it is particularly worthy of remark that the question of the spontaneous origin of the disease was seriously debated. It is hardly necessary to add that the idea was combated by most of the members; the English members among them being Mr. Cope, Chief Inspector in the Agricultural Department, and Dr. Fleming, President of the Royal College of Veterinary Surgeons.

Want of time prevented the full consideration of the very important subject of Bovine tuberculosis and its possible com-

munication to man, by means of the flesh of diseased animals. This omission is the more to be regretted, as there were present several members who would have given valuable information on the subject.

Veterinary education was the last question which was brought before the Congress, and it was noticed in this connection that the English and Scotch Veterinary Schools were unrepresented.

Lastly, the idea which we suggested in our last issue, of the selection of London for the next meeting of the International Congress, was favorably entertained; and we may state positively that there are no difficulties in the way which may not easily be surmounted.

Taking a general view of the proceedings of the Congress, it cannot be suggested with any approach to truth that the results are of great importance; nor, indeed, can it be said that any conclusions were arrived at which are at all calculated to influence international laws in relation to the transit of animals, or the prevention of contagious diseases. Nevertheless, the effects of such meetings are generally beneficial, and their tendency is in the direction of professional advancement.

The policy of isolation which the veterinarians of this country have adopted, even without intending it, has inevitably checked progress, by preventing the intercommunication of ideas on which progress largely depends. It may be flattering to our insular prejudices to reflect that what we have done has been achieved without foreign aid, and that our science, if it lacks the brilliancy which characterises its advance abroad, is more secure in its solidity and practical aims; but it is at the same time possible to miss the advantages of a little foreign finish: and we should have no fear of being led far from our mark if we could tinge our eminently practical imagining with a share of the livelier colouring, which is so evident in the literary productions from Continental neighbours.

## THE MAYER FUND.

We readily comply with the request to give insertion *in extenso* to the subjoined circular letter which has recently been forwarded to many members of the profession by our old and much respected friend, Mr. T. Walton Mayer, with whose position we deeply sympathise. Earnestly do we trust that the appeal will not be in vain, and that in the stirring language of Mr. Greaves—a note from whom appeared in our last issue—"the Veterinary profession will respond as with one voice, and thus place an aged and worthy man in a position of comfort and ease during the evening of his days."

The number of contributors at present is small, nevertheless, the amount received argues well for the final success of the appeal. According to promise we give the amount received up to the time of our going to press.

*Contributions already received.*

| | £ | *s.* | *d.* |
|---|---|---|---|
| J. Roalfe Cox | 10 | 0 | 0 |
| Sir F. Fitzwygram, Bart. | 5 | 0 | 0 |
| Professor Brown | 5 | 0 | 0 |
| Professor Simonds | 5 | 0 | 0 |
| Thomas Greaves | 3 | 3 | 0 |
| G. Balls and Son | 3 | 0 | 0 |
| Messrs. Lepper | 2 | 2 | 0 |
| J. Freeman | 1 | 1 | 0 |
| E. Burnside | 1 | 1 | 0 |
| S. W. Withers | 1 | 1 | 0 |

"50, Victoria Road, Aldershot, *August*, 1883.

"*To the President, Vice-Presidents, Council, and Members of the Royal College of Veterinary Surgeons.*

"Gentlemen,—It is with feelings of the deepest regret and greatest reluctance that I find myself compelled to place my present position before my professional brethren and to appeal to their sympathy and support. For one who like myself has occupied an elevated position the necessity to do this becomes more painful; but when I call to mind that the necessity has not

arisen through a want of prudence on my part, this grief becomes much lessened, as throughout my whole career I have endeavoured to maintain a good name, and have constantly laboured to maintain the dignity of my profession.

"Almost immediately after obtaining my diploma in 1835 I acted as secretary to a committee of influential Veterinary Surgeons, whose object was the obtainment of a legal position for the profession, and whose exertions were ultimately crowned with success by the granting of the Charter of 1844. As a reward for my services I was honoured with a seat at the original council table, a position which I held from 1844 to 1854. In the latter year I was elected one of the Vice-Presidents, and again in 1855, 1857, 1872, and 1875.

"As a practical Veterinary Surgeon I commenced my career at Newcastle-under-Lyme, and quitting that through severe family affliction and pecuniary loss, I entered the Army, served in the Crimea in 1855-56, and afterwards in England down to 1870, when I was compulsorily placed on half-pay. Since then, as is well-known to the profession, I have held office as one of the examiners and also as one of the professors at the Royal Agricultural College, Cirencester. These positions I have been obliged to relinquish partly through advancing years and diminished energy. As these details are only known to a limited number of my professional brethren I have ventured to name them to show that I have ever endeavoured to do my duty and to maintain the dignity of my calling.

"As years have advanced upon me, I regret to say that I am able to do but little for the support of my wife and family. Hence to relieve myself from embarrassments which have throughout attended my course, I have ventured to make this appeal which I trust will not be in vain. In conclusion, I may add that my lasting gratitude will be given for that relief which will soothe my sorrow, and throw a halo of comfort around my old age. The Editors of the 'Veterinarian' have kindly consented to receive donations, which should be sent to the care of Mr. Adlard, Printer, Bartholomew Close, London.

"I am, Gentlemen, your obedient servant,

"Thos. Walton Mayer, F.R.C.V.S."

P.S.—Cheques and post-office orders should be crossed "& Co.," and be made payable to the order of Mr. J. E. Adlard.

## Extracts from British and Foreign Journals.

### ON THE SUTURE AND TRANSPLANTATION OF NERVES.

Dr. E. G. Johnson, of Stockholm, in a long and interesting paper in a recent number of the *Nordiskt Medicinskt Arkiv*, after referring to the literature of the above subject, gives the results of his own experiments made in the laboratory of the School of Medicine at Stockholm. In sixteen cases he reunited, by means of a catgut suture, the entirely divided ends of the sciatic nerve. The re-establishment of the nervous influence by the cicatrix was observed on the fortieth day in the experiments on rabbits, on the thirty-first day in those on dogs, and on the twenty-fifth on fowls. In twenty experiments on rabbits the two ends of the sciatic nerve were not reunited, and the passage of the nervous influence by the cicatrix in these cases was not observed till after sixty days. The presence or absence of this influence was indicated by the excitation of the nerve above the cicatrix, by means of a weak induction current or by mechanical excitation. In the experiments on rabbits, microscopical examination showed on the fortieth day in cases of suture of the nerve, and on the sixtieth day in those of simple section, bundles of amyelinic nervous fibres passing across the cicatrix from the central extremity of the nerve to its peripheral parts. In reference to the transplantation of nerves, Dr. Johnson has succeeded in inserting, in the deficient intervals of the sciatic nerve of two fowls, portions of the sciatic nerve of other fowls, and in the sciatic nerve of a third fowl a portion of the sciatic nerve of a rabbit. The first two fowls were killed at the end of twenty-eight days and thirty-four days respectively, and the third after twenty-three days. The portions of the transplanted nerve were perfectly grafted on the original nerve, but the nervous influence through the cicatrix did not exist in any of the cases. Microscopical examination exhibited a very evident contrast between the portion of the central nerve where the degeneration was but slight, the intermediate portion where the myeline was very much subdivided, and the peripheric portion where scarcely any traces of myeline were to be found.—*Medical Times and Gazette.*

# THE NATURAL HISTORY OF THE LIVER-FLUKE AND THE PREVENTION OF ROT.

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(*Concluded from p.* 633.)

## Part III.—The Prevention of Rot.

Now that we have followed the whole of the life-history of the parasite, and know where it is to be found and to be fought, at all the stages of its varied existence, we are in a position to discuss the important practical bearings of the question. We may therefore proceed with the consideration of the preventive measures, which, if carefully carried out, will, it is believed, enable us to reduce the losses to a comparatively insignificant amount; and eventually, if all farmers will combine their efforts, totally stamp out the disease, so that it may become altogether a thing of the past.

Let me first state the conditions necessary for the existence of liver-rot, as proved by the foregoing research, and discuss the measures which will prevent the conditions being satisfied, and therefore prevent the disease itself; and lastly give a summary of the preventive measures.

The conditions necessary for the existence of liver-rot in any given locality are as follows:

1. There must be fluke-eggs on the ground.
2. There must be wet ground or water during the warmer weather for the eggs to hatch in.
3. A particular snail called *Limnæus truncatulus* must be present.
4. Sheep or other animals must be allowed to feed on the same ground, without proper precautions being taken.

If any one of these conditions remains unsatisfied there can be no fluke-disease or liver-rot in the locality. Let us consider these conditions in detail.

1*st Condition. There must be fluke-eggs on the ground.*—We have already seen that the fluke whilst in the liver of the sheep, rabbit, or other animal, produces vast quantities of minute eggs, and that these pass into the intestines and are distributed in myriads wherever the droppings fall. So that wherever fluked sheep are kept there we shall have fluke-eggs.

In some districts the fluke is alwas to be found, though in dry seasons it may become scarce. Still a few exist, and these are quite sufficient to keep up the breed until a wet season occurs, when, under the favorable influence of moisture, they increase so rapidly as to produce a devastating outbreak.

But the fluke disease may appear in quarters where it was previously unknown, and surprise is frequently expressed at the way in which it suddenly breaks out in isolated flocks. The infection, however, may be introduced in many ways. Eggs may be brought in manure; or adhering to the feet of men, horses, or dogs; or they may be conveyed by running water, and especially by floods. Rabbits and hares, too, have much to answer for in distributing the parasite. The same account is given everywhere of the way in which rabbits suffer from rot, and in some neighbourhoods about Oxford they were almost exterminated by it in 1879-80. I have received on several occasions fluked rabbits, and have known them to contain each as many as forty or fifty flukes. Wherever they go, and they often wander far from home, the eggs of the fluke are distributed in their droppings. In a case where infection had suddenly broken out in an isolated flock of sheep at Wytham, near Oxford, I was able to show that the rabbits from the neighbouring woods had introduced the disease.

So wonderfully fertile is the liver-fluke that, if every egg were safely hatched out and the full average multiplication in the snail were attained, a single rotten sheep might pass enough eggs to eventually give the rot badly to all the sheep in England, some thirty millions in number. Fortunately the chances are very greatly against any flukes being reared from any particular egg. Still we must do all we can to increase these adverse chances, and must begin the prevention of rot by waging a war of extermination against the eggs. If we can destroy or, better still, render impossible the production of nine out of every ten fluke-eggs which are annually scattered in England, we shall so mitigate the rot that instead of a sheep being infested with two or three hundred flukes, it will on the average contain only twenty or thirty. Now whilst two or three hundred flukes would destroy a sheep, twenty or thirty will do comparatively little harm.

The production of fluke-eggs may of course be prevented by killing the sheep as soon as it is known that it is suffering from the rot. Extreme as this measure may seem to some, if the sheep are at all badly rotted it will prove the

most economical in the end, especially if the disease is discovered at an early stage. It is better to lose a little at the outset than to run the risk of having finally to sell the sheep for little more than the price of the skin. The quality of the meat will be only slightly deteriorated at first, and there will then be no objection to its use for food. But as the disease advances, the meat will become less and less wholesome, and at last become totally unfit for human consumption.

There is no cure known for the rot, for the fluke inhabits the liver, an organ which can only be reached through the blood, and it is impossible to prescribe any drug which will harm the fluke without harming the sheep at the same time. It is quite true that if the sheep does not contain too many flukes, it may recover when the natural life of the fluke comes to an end, provided its strength is kept up by a liberal diet. But the life of the fluke may last so long (see pp. 630-31) that, even if this method prove successful, it will be very costly, and it is scarcely worth while making the attempt, unless the sheep be of a specially valuable breed, or unless there is reason to believe that it contains only a small number of flukes. If the owner decides to try to keep the infected flocks, they should not be allowed to remain on wet ground, for then the fluke-eggs would have a favorable place for hatching, and the result might be a harvest of death reaped in the following season.

If rotten sheep are kept at all, let them be placed on dry ground, where the eggs cannot meet with the moisture necessary for their development, and where there is no chance of their being washed into ditches, ponds, or streams. A brook may easily carry the eggs down with its current to land lying at a lower level.

If there is reason to suspect that a flock of sheep is attacked with liver-rot, either one of the most suspicious-looking should be killed and its liver examined for flukes; or if a microscope is available, the point will be more readily decided by taking a very small quantity of the droppings of the sheep on the point of a penknife, mixing it with a little water on a glass slide, and examining for fluke-eggs. If the animal contains many flukes, even so small a quantity of the droppings will show several eggs, easily recognised as eggs on account of their perfectly definite shape and yellowish-brown colour. This method of course will only serve to prove the presence of the flukes when the disease has been taken for some time, for the fluke does not begin to produce eggs until it has been in the sheep some six weeks.

The manure of fluked animals must never be placed on wet ground. If the sheep are kept in a yard, the manure should be collected, and a little coal-tar oil may be added to prevent the development of the eggs; or it should be kept for a considerable time before it is spread on the fields. The livers of rotten sheep should be destroyed, for they contain enormous numbers of eggs; perhaps the simplest way of getting rid of them will be to bury them deep. When livers are not very much injured by the fluke, they are often given to dogs; and there is no great objection to this, *provided they be well cooked first*. Otherwise, if they are given in a raw state, the contained eggs will pass uninjured through the dog, and be distributed by it.

*2nd Condition. There must be wet ground or water during the warmer weather for the eggs to hatch in.*—If the eggs of the liver-fluke are to be hatched, they must be in water, or at least be kept moist, during some weeks of warm weather, or even for some months if the temperature be lower. If the eggs are once thoroughly dried, their vitality is destroyed, the side of the shell being usually crushed in.

Ground is often, with reference to the rot, spoken of as "sound," or, on the contrary, as "rotting." When the droppings containing fluke-eggs fall on to a field, the rain will distribute the eggs over the surface, washing them down to the roots of the grass. If the soil is light and sandy or porous, the ground will be "sound," for the water will filter into the earth, leaving the eggs on the surface, where they will get dried, and so be destroyed. If, on the other hand, the soil is heavy and clayey, so that the rain-water does not sink into the earth, but flows along the surface, the ground is "rotting." For, as the water flows over the surface, it carries the fluke-eggs along with it, and deposits them in ditches, holes, marshy places, furrows where the water stands, all of them places where the eggs will hatch.

The obvious remedy for this evil is to drain the land thoroughly and efficiently, and this will not only do much to prevent the rot, but will have the further advantage of greatly improving the herbage.

Where it is not practicable to drain the land at once, either salt or lime may be scattered over the surface. Both these substances will destroy the embryos of the fluke, and at a later period the cysts when attached to the grass. And, still further, they will destroy the snails which serve as hosts to the intermediate forms of the liver-fluke. The freedom from rot of sheep feeding on salt-marshes is well-known, and is now shown to be due to the poisonous action of the salt

on the embryos, sporocyst, redia, cercaria, and cyst, and to its similar action on *Limnæus truncatulus* itself.*

Even a weak solution of salt in water (containing only $\frac{3}{4}$ per cent. of salt) proves fatal to this snail. Dressings of salt have the advantage over lime in not spoiling the grass for immediate use, whereas lime will do so. It may, however, at times be better for the land itself that lime should be applied. It will be for the farmer to decide which dressing should be used.

It is naturally of much importance that the salt or lime should be distributed at the right time of the year, when fluke-germs and snails are present in the greatest numbers. The snail buries itself in mud, or soil, in the winter-time, and owing to the cold no embryos are hatched out at that time. If the weather be warm in April, it is possible that a few may be hatched out towards the end of the month, but they will not be numerous. In May, however, greater numbers will be hatched, and still more in June and July. These two months are the time of the year when the snails are most liable to be infected. As more eggs are distributed through the whole of the summer by fluked animals, it is clear, of course, that the production of embryos, though in less numbers, will continue from August until the time when the development is checked by autumnal cold.

Even under the most favorable circumstances it will be seven weeks before the cercariæ are formed within the snail so as to be ready for transference to the sheep. Animals may take the rot as early as June, but this is not of frequent occurrence. In July, however, the germs or cysts on the grass become more numerous, though still comparatively scarce. In August more will be found, but it is in the months of September and October that they are most numerous. These are the most dangerous months. The Northumberland farmers hold that the end of October is the most fatal time for their district. In November the germs are less numerous, and rot is less frequently taken, though there are one or two instances in which the disease has been clearly proved to have been taken as late as the beginning of December.

Some farmers are inclined to place the dangerous period earlier in the year, dating from the time of a flood in June or July. It may be quite correct to attribute the outbreak to the flood, but the date of the flood may simply be the time

* It may be worth noting that water-cress should be steeped in salt and water before it is eaten, so as to guard against any possible infection from adhering cysts of the liver-fluke.

when the snails are infected, and not when the sheep take the rot. The cercariæ would probably be matured some two months later, so that the true date of the infection of the sheep would be August or September.

In the case of snails which become infected late in the year, the different generations will not have time to grow, multiply, and become mature before the cold of the closing year drives the snail into its winter quarters, and suspends for the time the life of the parasites. It is a question of some interest whether the snail and its included parasites can together survive the winter and complete their growth in the following spring. If the parasites are numerous or are far advanced, the snail is so much weakened that, fortunately for us, it will probably succumb to the rigours of the winter. But there can be little doubt that some few will retain their vitality throughout the winter, and with the return of milder weather a fresh start will be made, and that at length the forms destined to be transferred to the sheep will be matured. Some of the cases of early infection in June are probably due to parasites which have survived the winter in the snail.

June and July are then the principal, but not the only months, in which we are to wage war against the embryos; the latter part of August, September, and October, are the months in which especially to destroy the germs on the grass ready for transference to the sheep.

*3rd Condition. A particular snail called Limnæus truncatulus must be present.*—There seems to be only one snail in England* which can serve as host to the intermediate forms of the liver-fluke. Consequently, wherever this snail is absent there can be no liver-rot, and if we could succeed in exterminating it, we should render it impossible for the disease to exist in England.

The snail, however, is small, and hence difficult of detection, so that all we can hope to do is to limit its numbers in

* The snail *L. truncatulus* has a very wide distribution, being found, according to Dr. Gwyn-Jeffreys, throughout Europe, in North Asia, Morocco, Algeria, Madeira, and (doubtfully) Guatemala. The liver-fluke, however, has a much wider distribution, and it follows that there must be in certain countries, supposing *L. truncatulus* to be *really* absent, another snail which can replace it as host. Thus the fluke is found in the United States, where *L. truncatulus* is said not to occur, though several other kinds of snails belonging to the genus *Limnæus* are found. In Australia the fluke occurs both in sheep and in human beings. *L. truncatulus* is stated not to exist there, but eleven kinds of *Limnæi* are recorded. It is probable that in both these countries some other species of *Limnæus* serves as host.

any given locality. There are several ways in which this may be done. First of all, the land should be well drained.

Fig. 19.

Fig. 19.—The snail, *Limnæus truncatulus*, which serves as host to the sporocyst, redia, and growing cercaria of the liver-fluke. The drawing is magnified, and the true length is shown by the line at its side. (Original.—A. P. T.)

Fig. 20.

Fig. 20. — *Limnæus truncatulus*, of natural size. (A. P. T.)

I have known an instance in which *Limnæus truncatulus* was found in a small boggy place towards the middle of a field, and was there the means of propagating the fluke. When, however, the marshy place was drained, the snail disappeared from the ground, and with it the fluke-disease. A dressing of lime or salt will, as already mentioned, destroy the snails, and, if applied to the ground for this purpose, it should be scattered especially on or near any marshy places, or along the margins of ditches, ponds, or streams, out of which the snail will naturally crawl.

A flood may bring the snail down in quantities, and scatter it broadcast over fields which were previously free from it (see p. 629). The snails may be infected before they are brought down by the flood, and infection be thus introduced into new areas; or they may become infected subsequently, if there are eggs on the ground. They are drifted everywhere. Flooded land should therefore have the salt or lime scattered over the whole of its surface when the waters have gone down.

*4th Condition. Sheep or other animals must be allowed to feed on the same ground, without proper precautions being taken.*—If any ground is likely to give the rot to sheep, the simplest plan would, of course, be not to allow them to graze upon it, but to keep them on drier and safer land. But such advice would seem a mockery in certain districts, where all the land is more or less unsound. A great deal of such ground would probably be found to be heavy, and in urgent

need of drainage. But it must always be remembered that even a sound porous soil may become dangerous in a season of excessive wet, if it lies so low that it becomes clogged with water which cannot be carried off fast enough by the rivers, or if it is flooded.

If it is necessary to send sheep on to dangerous ground, great care should be exercised in observing the following precautions:

Salt or lime may be scattered on the surface at the proper season, to destroy the germs, as already explained.

Salt should also be used in another way. It has long been known that salt is a preventive when given to the sheep with their food, but many farmers have been slow to use it. There are two reasons for its action. First, it acts injuriously upon the germs of the liver-fluke which may be swallowed; and secondly, it improves the general health of the sheep, enabling them to digest the germs better. In addition to the salt, dry food should be given, as this will, by keeping them in good health, greatly improve their chance of digesting the young flukes. If the salt be mixed with the dry food, each sheep is more likely to secure its proper proportion, and no more, than if lumps of rock-salt are simply put down for the sheep to lick when they please. Care must, however, be taken that breeding-ewes do not get too much.

It will scarcely be necessary to give salt to them after November, so far as this particular purpose is concerned, for there will then be very few of the germs or cysts about on the grass.

In this connection may be mentioned an experiment recently tried by Mr. T. P. Heath, veterinary officer for Exeter and Devon, and published in the *Western Morning News* for Oct. 14th, 1882. It is especially valuable on account of its definite and exact nature. No sheep had been kept in safety on or near Mr. Heath's farm within living memory. A number of unaffected sheep were selected, and divided into two flocks. One flock was kept as all other farmers' sheep are kept; to each sheep of the other flock was given a quarter of an ounce of common salt, well mixed with half a pint of oats every day that they fed on the *permanent pastures*. Whilst they were feeding on turnips, vetches, &c., this corn and salt allowance was entirely dispensed with. All the sheep were killed in summer. The half fed with corn and salt were quite sound; the other half had flukes in their livers, so that they could not have been kept through another winter. Mr. Heath had no cause of complaint with

his speculation, as the subjects of his experiment realised a profit of about 50s. per head, and the cost of corn and salt did not exceed 3s. each.

Sheep must not be allowed to graze too closely for they are then specially liable to take the rot. Not only does close-grazing imply that food is scanty, and that the health, and therefore the digestive power, of the sheep is likely to suffer in consequence, but the sheep will pick up more fluke-germs. The snail, in crawling about in the grass, keeps, as a rule, at the bottom, close to the roots; the cercariæ accordingly, on leaving the snail and proceeding to form their cysts or envelopes, will attach themselves to the stalks of grass or other plants, close to the ground. Hence the closer the sheep grazes the more of these cysts it is likely to pick up. There are many instances on record, and I have myself met with others, in which "hog-jawed" sheep, which are unable to graze closely, have escaped infection when all the rest of the flock have been rotted. The special liability of sheep to the fluke seems in some measure to be due to the fact that it can graze more closely than any other domestic animal.

*Summary of preventive measures.*—I may now give a summary of the preventive measures which have been suggested above.

1. All eggs of the liver-fluke must be rigorously destroyed; manure of rotten sheep, or other rotten animals, must not be put on wet ground.

2. If sheep are rotten, let them be sent to the butcher at once, unless they are specially valuable and are not badly fluked. If kept, they must not be put on to wet ground.

3. Care must be taken to avoid introducing eggs of the fluke, either with manure, or with fluked sheep, or in any other way. Rabbits and hares must not be allowed to introduce the eggs.

4. All heavy or wet ground must be thoroughly drained.

5. Dressings of lime or salt should be spread over the ground at the proper seasons to destroy the embryos, the cysts of the fluke, and also the snail which acts as host.

6. Sheep must not be allowed to graze closely, for the more closely they graze the more fluke-germs will they pick up.

7. When sheep are allowed to graze on dangerous ground they should have a daily allowance of salt, and a little dry food.

If all farmers will unite in carrying out the above preventive measures, suggested by the knowledge of the life-history

of the parasite, there is no reason why the fatal ravages of the destructive fluke should not be so restricted that the losses would at once be reduced to a comparatively trifling amount. There is at present one obstacle in the way of the total extermination of the fluke. So long as rabbits and hares have free liberty to convey the infection from one district to another, there will always be a danger of a fresh outbreak in places where the fluke had for the time been driven out. And for rabbits in a state of nature we cannot adopt preventive measures in the same way that we can for domesticated animals, so that on wet waste lands the breed of flukes may be constantly kept up. Very much, however, may be effected by united action; and if the preventive measures which are now suggested are strictly carried out by all, we shall hear no more of disastrous outbreaks of the sheep-rot, and something at least will have been effected towards raising the fortunes of British Agriculture.

In concluding, I desire once more to express my thanks to to all the gentlemen who have so readily and courteously assisted my investigations upon their fields. It gives me much pleasure to take this opportunity of thanking Dr. Acland for kindly permitting me to use the Sanitary Laboratory of the Oxford Museum for my experiments, and Professor Moseley for kindly placing all apparatus in the Anatomical Department at my disposal.

To my friend Mr. W. Hatchett-Jackson, Natural Science Lecturer of St. John's College, Oxford, I am especially indebted, for he has most kindly come to my aid when prevented by my departure for New Zealand from revising the present paper, and has, by undertaking the revision of the proofs of both figures and text, and by making for me some additional drawings, rendered its earlier publication possible.

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## VARIOLA AND VACCINIA.

When Jenner made his great discovery he believed the cow-pox to be immediately derived from the horse-pox;* but

* Jenner in his 'Inquiries into the Causes and Effects of the Variolæ Vaccinæ' does not speak of horse-pox. His words are: "There is a disease to which the horse from his state of domestication is frequently subject. The farmers have termed it the *grease*. It is an inflammation and swelling in the heel from which issues matter possessing properties of a very peculiar kind which seems capable of generating a disease in the human body (after it has undergone the modifications I shall presently speak of), which bears a strong resemblance to the smallpox, that I think it

both to be nothing more or less than the human smallpox accidentally implanted in, and modified by transmission through, the body of one of the lower animals—attributing the protective power of vaccination to its ultimate identity with the graver disease. Acting on this belief, some of his followers, as Ceely, Badcock, Thiele, and Senft,* attempted to originate new stocks of lymph by inoculating calves with human variola, and apparently achieved entire success. Dr. Martin, of Boston, U.S., and some Indian surgeons, following in their steps, found to their dismay that the objects of their vaccinations developed unmitigated smallpox, which they communicated to others by ordinary infection. These results put a check to further experiments in this direction, and the friends of animal vaccination have for some time contented themselves with perpetuating certain stocks of lymph derived from alleged cases of spontaneous cow-pox appearing at long intervals, or by the practice of retro-vaccination. Of late years the views of Jenner and his followers have been impugned by the French school, headed by Chauveau, by Bollinger, in Germany, and by Fleming in this country. These observers maintain that the variolæ or "poxes" of the lower animals belong to one of two groups—those represented by the sheep-pox, which is a fatal, infectious, acutely febrile disease, with a general pustular eruption closely resembling human smallpox in all its phenomena, yet not conferring any immunity against it; and secondly, those which, like horse-, cow-, and camel-pox, are merely local affections, with little febrile disturbance, and devoid of danger to life, communicable even among these animals only by direct inoculation, and yet protective against smallpox.

They conclude from the results of Martin's experiments

highly probable it may be the source of that disease." "In this dairy country (Gloucestershire), a great number of cows are kept, and the office of milking is performed indiscriminately by men and maid servants. One of the former having been appointed to apply dressings to the heels of a horse affected with the *grease*, and not paying due attention to cleanliness, incautiously bears his part in milking the cows with some particles of the infectious matter adhering to his fingers. When this is the case it commonly happens that a disease is communicated to the cows, and from the cows to the dairy-maids, which spreads through the farm until most of the cattle and domestics feel its unpleasant consequences. This disease has obtained the name of *cow-pox*."

† The names of the late Mr. J. F. Marson, of the Smallpox Hospital, and of Professor J. B. Simonds, of the Royal Veterinary College, may be added to this list, as having successfully inoculated bovine animals with the virus of human variola (see "Report on the Vaccination of Sheep" presented to Parliament, June, 1864).—[Eds.]

that smallpox implanted in the cow remains unchanged, however closely it may simulate in its appearance those cases of cow-pox assumed to be of spontaneous origin, and therefore that Ceely's supposed vaccinations, though unattended by the grave consequences that followed Martin's, were merely favorable examples of variolous inoculation, and not vaccination at all.

The Lyons Commissioners, with truly French complacency, did not trouble themselves even to examine the records left by Ceely, Badcock, Thiele, and the rest; but ignoring them *in toto*, denied the possibility under any circumstances of transforming variola into vaccinia.

In these circumstances, therefore, we gladly direct attention to the careful investigations of Dr. Voigt, Superintendent of the Vaccine Institute at Hamburg, a detailed account of which he has published in the *Deutsche Vierteljahrschrift für öffentlische Gesundheitspflege*, B. xiv, H. 3, by which he has completely vindicated the doctrine of our immortal countryman, and by demonstrating the possibility of transmuting the most virulent variolous pus into vaccine lymph of the purest type has dispelled the doubt cast on the correctness, not to say the truthfulness, of the statements of Ceely and the rest. He admits that the experiments of Thiele, as recorded by himself, are wanting in scientific precision, but felt that he could not refuse credit to the carefully conducted and reported labours of Ceely, Badcock, and Senft. Indeed, as long ago as 1839, Schneemann received from Ceely himself some of his lymph, with which successive generations of children in Germany were vaccinated without a single untoward result, putting its true nature beyond the reach of doubt. The assertion that immunity against smallpox is conferred by the inoculation of a purely local, non-infectious, and non-febrile disease, as cow-pox is represented to be, and not by one so closely allied to variola as sheep-pox is, seemed to him paradoxical, if not incredible, and in every way less satisfactory than the explanation offered by the hypothesis of Jenner, confirmed by the experiments of Ceely and others equally worthy of credit. His reasoning led him to the following conclusions, which his experiments have, to a great extent, verified. He denies *in toto* the existence of spontaneous cow-pox in the sense of a specific disease, believing every case to be one of accidental communication from man (occasionally perhaps, as Jenner believed, through the medium of the horse) either of smallpox or of vaccination—an opinion supported by a consideration of the parts of those animals on which the eruption usually appears (the

ankles of horses and the udders of cows) being those most handled by the persons in attendance on them. This alternative origin in variolous inoculation or retro-vaccination he thinks accounts for the severity of the symptoms in some cases, and the mildness in others, when the "spontaneous" cow-pox has been used for purposes of vaccination. When the immediate source has been a case of variola, or at any rate a case of a severe type, his experiments show that the transmutation of the virus is not complete until it has passed through the bodies of at least half a dozen animals; and it was, he thinks, ignorance of this fact that produced such unhappy results in the practice of Dr. Martin and those Indian surgeons whose experience was the same as his. Probably Ceely and Badcock selected for their inoculations variola of a milder or mitigated form. It is well known that inoculation of the calf with variola is extremely difficult, easy though retro-vaccination be; hence the rarity of so-called spontaneous cow-pox. Reiter failed in fifty attempts spread over ten years, but succeeded in the fifty-first. When the inoculation is effected, it is comparatively seldom that any lymph-containing vesicle follows, the more frequent result being a dry papule or nodule, which, without further development, leaves a scab. This, which Voigt calls the abortive form, Chauveau, ignoring the successes of Ceely, &c., maintains to be the invariable result. He calls it "variola bovine," to distinguish it from the vesicular vaccinia, which he maintains to be a specific disease. Reiter, having vaccinated a child with lymph obtained from the single instance in which he succeeded in inoculating a cow with variola, induced mild but unmistakable smallpox, and abstained from further experiments therewith; but three weeks later he observed in the same stall cows with veritable cow-pox, which transmitted to human subjects genuine and innocent vaccinia. Voigt then resolved on trying the effect of successive "cultivations" on each generation of lymph. In his first three attempts he attained but partial success, the inoculation ending "abortively." The fourth was more fortunate, and Dr. Voigt chose as a *corpus vile* an ill-nourished, unhealthy child, admitted to the hospital for itch, but, being unvaccinated, in imminent danger from the appearance of smallpox in the ward. The result was what he had apprehended—intense febrile disturbance, axillary bubo on the side of the vaccinated arm, eczema, and some half-dozen discrete nodules, leading to fluctuating tubercles, though no truly variolous eruption. Happily for all concerned the patient recovered. Meanwhile Dr. Voigt continued his inoculations of calves through no fewer than fifteen genera-

tions with increasing facility, the symptoms presented by each successive inoculation assimilating more and more to the normal vaccinia. The second generation he did not venture to use; with the third he vaccinated four children, one twice without result, but the other three successfully; the fever ran rather high, and the axillary glands were enlarged, but there was nothing in the vaccinations specially worthy of note. It is true that they suffered respectively from erysipelas, tonsillitis, and pneumonia—mere accidents, which he attributed to the unusual severity of the weather and the insanitary conditions of their homes. He did not attempt further experiments until he had reached the eighth generation. This gave entirely satisfactory results, and an intercurrent eruption of measles subsided in two days. The lymph of the ninth and subsequent generations was employed without hesitation by the other surgeons of the Institute in their ordinary vaccinations, the appearances presented by the animals, and by the children vaccinated from them, being undistinguishable from those produced by the use of the Beaugency and other accredited sources of animal lymph.—*Medical Times and Gazette.*

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## A BUYER'S POSITION IN HORSE SALES.

The season of horse shows, a little idle time, with perhaps the prospect of picking up a treasure to replace one of last year's stud, one and all give an impetus to horse-buying. From what reaches us, however, these transactions do not invariably end as both parties would wish. Sometimes a too confiding seller finds that he has given his horse away; sometimes a buyer makes the discovery that his new purchase is absolutely worthless to him. Two or three of our readers have found themselves in the latter predicament, and, like a Sussex gentleman in a recent case, have been anxious to send back the horse, and have their money refunded. As a great deal of misapprehension exists on the subject, it may perhaps be of some service to intending buyers if we state under what circumstances a horse may and may not be returned to the seller.

When a horse is sold without a warranty the buyer has no right of return should the horse turn out unsound, vicious, or unsatisfactory in any or every respect. To a transaction of this nature the maxim *caveat emptor* applies, as the peer in the story found out when he gave twenty guineas for a Punch, and, on finding that he could not make it speak, sued

the puppet showman. Secondly, the buyer of a horse warranted sound, quiet, or of a particular age, has no right of return if the warranty be broken. We have on previous occasions explained in what a warranty consists, and what are the remedies of the buyer on a breach thereof—a right of return, however, not being one of them—so there is no necessity of again going over the same ground. Non-professional people are apt to confuse a warranty, description, and condition, and so to mistake their position on finding that a warranty given to them has been broken. Let us try and distinguish between the three. A warranty is an express or implied statement by the seller to the buyer that some particular horse is gifted with some particular quality, or is free from some defect. This statement, though part of the contract, is only auxiliary to the express object of the contract. A. sells to B. a horse warranted sound. Here the express object of the contract is the sale from A. to B. of the horse; the statement that the horse is sound is only collateral to the contract, though very likely the buyer would not buy without the warranty. A breach of this warranty gives no right of return. In horse dealing, description can only happen where the buyer does not treat for any particular horse, but orders a dealer to send him a horse fit to draw his dogcart, carry his 15-stone body to hounds, or serve as a hack for a very nervous woman. A condition is a term of the bargain, upon the performance or non-performance of which the whole contract depends. Condition and description will be treated of more fully presently. We may say, therefore, that a man who buys a horse, either with or without a warranty, has no right of return if the warranty prove untrue in the first case, or the horse unsatisfactory in the second.

Fraud, of course, vitiates all contracts; and if the seller has been guilty of fraud, the buyer will not be held to any bargain he may have entered into. But, putting fraud aside, a buyer can only return a horse where it is one of the conditions of the contract that he may do so, and the stipulation to that effect should be incorporated into the written warranty (see "Payne *v.* Whale," 7 East. 274). Or, again, the buyer may have a right of return where he has a horse on trial, approval, or, if he buy it to sell again, on "sale or return." Numerous examples of these contracts might be given; but one or two will be sufficient. A. may be desirous of buying B.'s horse as a hunter, but may distrust his ability to hold him. "Well," says B., "have him over at your place for a week, ride him with hounds; and, if you can't

hold him, send him back." A. has the horse, rides him with hounds, and finds he cannot hold him. In these circumstances A. may return the horse, because, in the first place, it was agreed that he should be at liberty to do so; and, secondly, the horse was never really sold, for the sale would not be absolute till A. had, within the time specified for trial, agreed to keep the horse. So, too, a man may have a horse on trial to see if he likes him generally, if he will match another; or he may take the horse subject to his being passed by a veterinary surgeon. In all the above instances the sales are only conditional upon the buyer liking the horse sent to him, and do not become absolute until the buyer express his approval and agree to keep the horse. If, however, the intending buyer keep the horse beyond the time specified for trial, he will be taken as having expressed his approval of the horse, and his right of return will no longer exist. "Humphries *v.* Carvalho," 16 East. 45; "Elphick *v.* Barnes," L.R. 5, C.P.D. 321). Again, if a man have a horse on approval, and if no time be specified for return, the buyer must notify his refusal to keep the horse within a reasonable time ("Ellis *v.* Mortimer," 1 B.O. and P.N.R. 257).

Now we come to description, which is so often confused with warranty. In horse-dealing, description can only come in where the intending buyer gives a dealer an order, not for any specific horse, but for a horse fit for a particular purpose. Thus, suppose a man tell a dealer to send him a 16-stone hunter; a horse arrives, but turns out to be a light built animal, up to 12 stone at most. Here the intending buyer may send the horse back, not because the warranty has been broken, for there is no warranty, but because the dealer has not performed his contract, for he might as well have sent a donkey. Commenting on cases like these, Lord Abinger, C.B., once said (see "Chanter *v.* Hopkins," 4 Meeson and Welsby, p. 404): "The circumstance of a party selling a particular thing by description has been called a warranty, and the breach of such a contract a breach of warranty; but it would be better to distinguish such cases as non-compliance with a contract which a party has engaged to fulfil, as, if a man offers to buy peas of another and he sends him beans, he does not perform his contract; but that is not a warranty. There is no warranty that he should sell him peas; the contract is to sell him peas, and if he sends anything else in their stead it is a non-performance of it." A passage in Mr. Baron Parke's judgment is to the same effect: "Suppose a party offered to sell me a horse of such description as would suit my carriage, he could not fix on

me liability to pay for it unless it were a horse fit for the purpose it was wanted for; but, if I describe it as a particular bay horse, in that case the contract is performed by his sending that horse." A right of return exists, therefore, where a horse is ordered for a particular purpose, but the animal sent is not fit for that purpose. The reader may, however, be reminded that, in order to give him the right of return on the ground of non-performance of the contract, he must make no selection himself. If he say, Send me that bay horse in the third stall to draw my carriage, he would have no right of return if the bay horse would not draw the carriage.

Buyers at auction have a qualified right of return, not owing to any fresh law on the subject, but because the return within a specified time is made one of the conditions of sale. At Tattersall's, for instance, horses not answering to the warranty must be returned by the evening of the Wednesday succeeding the Monday's sale, and the buyer has the full time allowed to make up his mind whether he will keep the horse or not ("Head *v.* Tattersall," 25 L.T. N.S. 631). If a horse not in accordance with the warranty is not returned within the time specified, the buyer will have to keep him with all faults, and his right of return is gone; he cannot return him after the proper time so as to protect himself under the condition of sale; and, as his keeping it beyond the time causes the sale to become absolute, the buyer cannot, therefore, bring an action on the warranty, because the effect of the condition is to prevent subsequent litigation ("Hinchcliffe *v.* Barwick," 42 L.T. N.S. 492). It is also important for both buyers and sellers to remember that, if any injury happens to a horse during the time agreed upon for trial, the loss falls upon the owner, and not upon the intending buyer, unless, of course, the latter has brought about the accident by negligence, or an improper use of the horse. This is the case whether the horse be on trial preparatory to a sale by private contract, or whether the accident happen during the time limited by the conditions of sale at auction ("Elphick *v.* Barnes," and "Head *v.* Tattersall," sup.).—*The Field.*

## MATERIA MEDICA VETERINARIA INDICA.

By J. H. Steel.

British veterinarians come to India armed with the knowledge of the actions and uses of drugs, which they have acquired from the admirable works of Morton and Finlay Dunn, or the excellent almost official 'Veterinary Pharmacopœia' of Tuson. It is to be feared that they generally go away again with few additions to their knowledge of materia medica, besides the agents mentioned in our list of bazaar veterinary medicines. And yet it must be remembered that the natives of India may well teach us something worth knowing about the value as medicines of the numerous and varied products of the rich peninsula which they inhabit and we rule. Our medical confréres, in respect of facilities for acquiring knowledge from native sources, have decidedly the advantage of veterinary surgeons, for there is a scientific medical profession among the natives with European or Anglo-Indian education, quite distinct from the Hakims and other empirical native professors of the healing art. Some day, no doubt, there will be native veterinary surgeons, but at present the Salootrie has the veterinary charge of horses, the Mahout of elephants, the Serwan of camels, while the cattle bear in firing-marks of various designs all over their bodies indications of heroic attention to their ailments on the part of the native cow-herd. The times are changing—classes for natives have been organised at the Indian veterinary schools, and they are now taught as much about their patients as English veterinarians were in the early days of Coleman, all the subjects of study being jumbled together in a short course, or a little well-digested practical matter only being taught to them in the short time available. The natives thus educated are found to be keen students, apt pupils, fair surgeons and physicians as a rule, but unequal to emergencies, deficient in originality and self-reliance, and so requiring exact supervision. It seems to us that much may be done in this direction for the development of veterinary science. It is futile to imagine that English practitioners will come into this country in large numbers; at most they can be scattered over the country in Government employ and use the native materials available. Our policy then should be to improve this material, especially in the direction in which it will most admit of amendment. By increasing the number of natives with a certain amount

of veterinary knowledge (apart from tradition and superstition), we shall enable the native owners of stock of all kinds to get cheap advice, and thus shall do something to diminish animal diseases in India, and so shall add to the wealth of the people and the State. The use of native medical practitioners has a standing evidence in the valuable 'Supplement to the Pharmacopœia of India' by Moodeen Sheriff, graduate of Madras Medical College, and native surgeon in Her Majesty's Indian Medical Service, which is a remarkable specimen of painstaking zeal and careful labour, and from which we have obtained much valuable information, which we gratefully acknowledge. Indeed, from it, as the standard work on the subject, we have in almost all cases obtained the native names of remedies. We observed that almost all the works consulted by us spelled these names differently, some in the endeavour to ensure correct pronunciation, others to obtain the exact literal equivalent. Neither of these courses is satisfactory in its results, for different people pronounce the same combinations of letters differently, and the letters of English do not correspond with those of Tamil, Telegu, and the other languages mentioned. Thus we are compelled to fall back upon the standard method of transliteration which our author has adopted with the greatest care and success. We have chosen five languages to enable our work to be utilised in most parts of India. Thus, *Hindoostanee* is the language generally adopted throughout the country, *Bengalee* is understood throughout the northern parts, *Telugu* in the Deccan and its immediate neighbourhood, *Tamil* farther south, extending inwards from the eastern coast, and *Burmese* in British Burmah. Thus our list ought to enable a practitioner in almost any part of India to obtain from the Bazaar the drugs to which we refer. With regard to native remedies we may remark, *firstly, the absence of refined chemical and manufactured products.* Scientific chemistry, or the art of purifying the natural and mineral products, and of extracting the active principles of plants, is unknown to the native: accordingly we find, *secondly, mineral remedies are usually natural mixtures, uncertain in their action, and of ill-ascertained value.* The information we have as to their doses is useless and unreliable. They are given internally somewhat doubtfully, except when (as in the case of calamine, chalk, and verdigris) they can be obtained from nature in a fairly pure state, or can be produced by very simple means. As we used to do before the days of scientific therapeutics, the natives attach extravagant value to substances of striking physical characteristics, such

as the beautiful orpiment and realgar, and other agents which we have proved to be uncertain, inferior, or absolutely devoid of useful therapeutical properties. Again, they, like our barber surgeons and farriers, *et hoc genus omne*, have long formulæ, some comprising even a quarter of a hundred different ingredients, probably on the "hit and miss principle," but in blissful ignorance of chemical incompatibility. These ingredients were mixed and compounded with the greatest care and exactness as to amount, order, method of admixture and preparation, the solemn mystery of the "remedy" being extended even to the method of administration. Incantations were often essential to the due concoction of the potion, and the phases of the moon required careful attention from the native pharmaceutists. Some of their materia medica owed much of their virtues to the superstition of both doctor and patient, to which class must be referred bezode stones and cowrie shells, as also the entrails of frogs and the use of powdered bones. The slight therapeutical value possible to such substances, would not be marked enough to prove perceptible to such crude and pre-convinced observers as the Salootries. *Thirdly, vegetable remedies used by native practitioners are those which grow in the country, and those introduced by commerce.* The former are used more or less in their natural state, the latter as resins, gums, dried leaves, and so on. The former are little known in England, the latter have often found their way thither, especially such as come from Persia, Arabia, and other Arab centres, whence the alchemists spread in one direction as well as the other. Thus, opium, gum acacia, catechu, &c., are as well known and appreciated in England as in India, and it must be remembered that many of our most useful drugs are of Indian origin. We remark, in running over our pharmacy in comparison with the Indian

(1) The absence of common English plants.
(2) The substitution of common Indian plants for them.
(3) The presence of some plants in common.
(4) The substitution of Indian species for European.

1. Such as white hellebore, arnica, colchicum, digitalis.
2. Such as kootkee, chiretta, mudar.
3. Such as linseed, caraway, galls, &c.
4. As Aconitum ferox for A. napellus; and Gentiana kurroo for Gent. lutea and Gent. acantis.

Thus, the Indian pharmacopœia may derive much value from the British and *vice versâ*. We must not prove exclusive in our selection of remedies. Each country supplies

medicinal substances of special value, and we are endeavouring to show what India can do in this direction. But we must remember that our knowledge of the medicinal resources of this vast Indian empire is at present in the most rudimentary stage, and very much remains to be done. Each veterinary surgeon in India may help to determine the true value of Indian bazaar drugs, and so little do we really know about the subject in hand, that almost all the therapeutic observations we shall make in these pages require confirmation or correction. The absence of British plants from native receipts is due, firstly, to the exclusive jealousy of native practitioners, and, secondly, to their recipes being of an age most venerable, and, as having originated from the medical authorities of the distant Pre-Anglican past, being as fixed and unalterable as the laws of the Medes and Persians. Perhaps British practitioners have too much despised "native medicines;" but they were justified to an extent in so doing, for besides empricism, alchemical tendencies, witchcraft, "hit and miss" practice, and complete absence of accurate and exact information, these natives have somewhat of the simple faith in the idea of "food in everything" found in Culpepper and our other herbalists. Great virtues are attributed by them to simples, and their care is specially directed to collection and preservation. Thus, as the plants enumerated by them as acting medicinally on animals are very numerous, and we have been compelled to pass over many with a bare notice, this will be taken as quite sufficient record of those whose actions and uses are doubtful or ill-ascertained.

It is curious to note how the history of veterinary science in this country has left its impress on our literature and ideas. At one time some medical men with taste for animal treatment found themselves called upon to investigate cattle diseases, and to apply their therapeutic knowledge to treatment of the horse, dog, &c. It is curious to see how they have left in common use agents of great value in treating men, but of the value of which for sick animals we are not so sure. Thus rhubarb, ipecacuanha, squills, borax, &c., will seem, to the eye of an English veterinary therapeutist, perhaps too prominent in the formulæ given for animal treatment in Indian veterinary literature. Again, this literature has hitherto generally been of the amateur stamp, full of shrewd observations on disease by men who have had a pecuniary stake at risk, forcing their close notice,—but utterly free from physiological, much more therapeutical knowledge, asserting in the amateur style this remedy the

best for this disease; with a tendency to homœopathy, and a large chapter devoted to formulæ; also frequent mention of quack medicines which in the author's experience have been found to have the effect ascribed to them, whether cathartic, vesicant, or astringent. Our amateurs have not *quite* got over the love of mystery.—*Quarterly Journal of Veterinary Science in India.*

[We shall be glad to receive the numbers of this excellent Journal from the commencement. At present only Nos. 1 and 4 have come to hand.—EDS.]

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## THE GERM THEORY AND DISEASE.

AT the meeting of the British Association just held at Southport, *Dr. Carpenter* treated this subject from a natural history point of view. He pointed out the facility which the lower forms of life possess of adapting themselves to changed conditions of existence. He believed, although it has not yet been proved, that the same germs under different conditions would give rise to various diseases; and these opinions he supported by various arguments. The decrease of the virulence of the smallpox he attributed to the cultivation of the mildest cases which occurred. Inoculation for smallpox did this great good, that it cultivated a mild disease out of a severe one, as was proved during the prevalence of the malady in the middle of the last century. A converse result was observed during the siege of Paris in 1870, when malignant smallpox developed from the mild form of the disease. A severe dose of any particular disease germ may also so affect the system that a disease arises which cannot be recognised as related to that from which it proceeded. Under favourable conditions an ordinary intermittent fever (endemic) may develop into a virulent form which is highly contagious. There was, in the opinion of the author, very strong ground for the belief that even the innocent hay-bacillus, which, when sown in broth or milk, simply causes its putrescence, and has no power of developing itself in the human body, may undergo such an alteration in its type as to become the germ of severe disease. Notwithstanding, therefore, the tendency among modern pathologists to regard the various form of zymotic disease as specifically distinct, and to attribute to inexact observation every recorded fact which ran counter to their preconceptions, the author held that the application of the natural history method to the study of

these diseases fully justified the belief that the same germs undergoing development under different conditions might manifest themselves under a variety of forms, and maintained that a larger study of the history of medicine justified the belief that while some of these germs, breeding only in the human body, had acquired a considerable fixity, yet that this fixity did not necessarily hold good over the whole world or through all time; and that there was a large class including cholera and the various forms of fever originating in germs which breed in the soil as well as in the human body, over which the nature of the breeding ground with various atmospheric (possibly electrical) conditions exerted a most important modifying influence. The same doctrine held true in regard to typhus and typhoid fevers, an opinion in which he was supported by the late Sir Robert Christison. Lately he had a controversy with Professor Tyndal on this subject, Professor Tyndal holding that cholera would only be propagated by germs from the human body. He (Dr. Carpenter), on the other hand, maintained that the germs might be bred in collections of decomposing matters, sewers, heaps of filth, and marshes. This view was supported by the report just published by Surgeon-General Hunter on the recent epidemic of cholera in Egypt. Dr. Hunter had completely disproved the theory that the disease had been imported from India, and shown that it had originated from the Egyptian marshes. He held that this inclusive study, taking account of all the facts which science could bring to bear on the inquiry, was much more likely to lead to accurate results than the exclusive method followed by many pathologists.

The *President* said the paper was important, as there was a desire to exclude the history of diseases from the medical curriculum. All he could say was that whenever that was done medical men would cease to be such able interpreters as they were at present.

*Mr. Vines* said there was no evidence of the mutability of the lower fungi, whatever there might be as to bacteria.

*Dr. Roy* gave an account of "Cattle disease in South America," whence he has but just returned. The germ causing the disease may undergo various modifications, as Pasteur has already shown in his experiments upon sheep, which he inoculated with disease germs, the germs being modified in strength by various means. Dr. Roy passed the poison into mice, or other animals, and in the blood of these animals he found contained a less virulent poison than that with which they were inoculated; but this when used as a

vaccine proved itself to be still deadly. The prairie dog was then used as a medium of cultivation, and the poison was found to be sufficiently modified for use for horses and cattle, though not for sheep. Exposure to heat for a longer period was sufficient to modify the virulence of the poison to such an extent that the sheep inoculated did not die, but they were not found to be protected against disease. Germs treated by Pasteur's method (*i.e.* cultivated in various artificial fluids), it was also found did not cause death, but yet did not prevent animals from contracting disease. Finally, Dr. Roy found that by heating the poison to 45° C. for seven or eight days a vaccine was obtained which prevented the death of sheep when inoculated with it, but yet, in his opinion, did not protect them from the disease, and he could not, therefore, adduce from his experience any support of Professor Pasteur's theory.

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## THE PROGRESS OF BIOLOGY.

At a meeting of the British Association, Professor E. Ray Lankester, said:—I need hardly remind this audience of the almost romantic history of some of the great discoveries which have been made in reference to the nature and history of living things during the past century. The microscope, which was a drawing-room toy a hundred years ago, has, in the hands of devoted and gifted students of nature, been the means of giving us knowledge which, on the one hand, has been the means of saving thousands of surgical patients from terrible pain and deaths, and, on the other hand, has laid the foundation of that new philosophy with which the name of Darwin will for ever be associated. When Ehrenberg, and later, Dujardin described and figured the various forms of monas, bibrio, spirillum, and bacterium which their microscopes revealed to them, no one could predict that fifty years later these organisms would be recognised as the cause of that dangerous suppurations of wounds which so often defeated the beneficent efforts of the surgeon, and made an operation in a hospital ward as dangerous to the patient as residence in a plague-stricken city. Yet this is the result which the assiduous studies of the biologists, provided with laboratories and maintenance by continental States, have in due time brought to light. Theodore Schwann, professor at Liège, first showed that these bacteria are the cause of the putrefraction of organic substances, and subse-

quently the French chemist Pasteur, professor in the Ecole Normale of Paris, confirmed and extended Schwann's discovery so as to establish the belief that all putrefactive changes are due to such minute organisms, and that if these organisms can be kept at bay no putrefraction can occur in any given substance. It was reserved for our countryman, Joseph Lister, to apply this result to the treatment of wounds, and by his famous antiseptic method to destroy by means of special poisons the putrefractive organisms which necessarily find their way into the neighbourhood of a wound, or of the surgeon's knife and dressings, and to ward off by similar means the access of such organisms to the wounded surface. The amount of death, not to speak of the suffering short of death, which the knowledge of bacteria gained by the microscope has thus averted is incalculable. Yet, further, the discoveries of Ehrenberg, Schwann, and Pasteur are bearing fruit of a similar kind in other direetions. It seems in the highest degree probable that the terrible scourge known as tubercular consumption or phthisis is due to a parasitic bacterium (bacillus), discovered two years since by Koch, of Berlin, as the immediate result of investigations which he was commissioned to carry on at the public expense in the specially erected Laboratory of Public Health by the German Imperial Government. The disease known as erysipelas and glanders or farcy have similarly, within the past few months, in German State-supported laboratories, been shown to be due to the attacks of special kinds of bacteria. At present this knowledge has not led to a successful method of combating those diseases, but we can hardly doubt that it will ultimately do so. We are warranted in this belief by the fact that the disease known as "splenic fever" in cattle, and "malignant pustule" or anthrax in man, has, likewise, been shown to be due to the action of a special kind of bacterium, and that this knowledge has, in the hands of MM. Toussaint and Pasteur, led to a treatment in relation to this disease similar to that of vaccination in relation to smallpox. By cultivation a modified growth of the anthrax parasite is obtained, which is then used in order to inoculate cattle and sheep with a mild form of the disease, such inoculation having the result of rendering the cattle and sheep free from the attacks of the severe form of disease, just as vaccination or inoculation with cow-pox protects man from the attack of the deadly smallpox. One other case I may call to mind in which knowledge of the presence of bacteria as the cause of disease has led to successful curative treatment. A not un-

common affliction is inflammation of the bladder, accompanied by ammoniacal decomposition of the urine. Microscopical investigation has shown that this ammoniacal decomposition is entirely due to the activity of a bacterium. Fortunately, this bacterium is at once killed by weak solutions of quinine, which can be injected into the bladder without causing any injury or irritation. This example appears to have great importance, because it is the fact many kinds of bacteria are not killed by solutions of quinine, but require other and much more irritant poisons to destroy their life, which could not be injected into the bladder without causing disastrous effects. Since some bacteria are killed by one poison and some by another, it becomes a matter of the keenest interest to find out all such poisons, and possibly among them may be some which can be applied so as to kill the bacteria which produce phthisis, erysipelas, glanders, anthrax, and other scourges of humanity, while not acting injuriously upon the body of the victim in which these infinitesimal parasites are doing their deadly work. In such ways as this biology has turned the toy "magnifying-glass" of the last century into a saver of life and health. No less has the same agency revolutionised the thought of men in every branch of philosophy and speculation. The knowledge of the growth of the chick from the egg, and of other organisms from similarly constituted beings has been slowly and continuously gained by prodigious labour, extending over generation after generation of students who have occupied the laboratories and lived on the stipends provided by the Governments of European States—not English but chiefly German. It is this history of the development of the individual animal and plant from a simple homogeneous beginning to a complex heterogenous adult which has furnished a starting-point for the wide-reaching doctrine of evolution. It is this knowledge, coupled with the knowledge of myriad details of structure of all kinds of animals and plants which the faithful occupants of laboratories and the guardians of biological collections have in the past hundred years laboriously searched out and recorded—it is this which enabled Darwin to propound, to test, and to firmly establish his theory of the origin of species by natural selection, and finally to bring the origin, development, and progress of man also into the area of physical science.—*The Mark Lane Express.*

## BACTERIOSCOPIC EXAMINATION OF WATER.

Some time ago Dr. R. Koch suggested the application of the method of pure cultivations to the detection of bacteria in water, but since he found them always present, and in enormous numbers, it seemed as if little practical good would come of it. He has, however, succeeded in giving it a quantitative character, and, in the recent inquiry into the alleged deterioration of the waters of the Spree by the effluent of the Berlin sewage-farms, has shown that valuable inferences may be drawn from its indications. After a preliminary examination of the water in question, firstly, with a power of 100 diameters, and then with one of 500, he evaporates a drop on a glass cover, stains it with methyl blue, and mounts with Canada balsam. Having thus formed a rough notion of the relative abundance of bacteria, he takes a quantity varying from ten drops of distilled water down to $\frac{1}{1000}$ drop (obtained, of course, by dilution) in the case of the foulest sewage, and intimately mixes it with one cubic centimetre of his gelatinous cultivating fluid, which, having been sterilised by boiling, is not yet cooled down quite to the solid state. This is then spread out on a part marked out on a glass slide, previously exposed to a flame, where it sets into a thin film. The slide, covered by a bell-glass enveloped in moistened blotting-paper, is kept in a warm room for thirty to sixty hours. Every bacillus or micrococcus capable of development will be by this time found to have given rise to a separate colony, unless the original germs were in actual contact—these colonies appearing as cavities of various sizes and hues in the solid gelatine, which at these points has been liquefied by their vital action. A glass cover, ruled in square centimetres, is laid over the gelatine, the number of vacuities in several of the spaces counted with the help of a glass of about thirty diameters, and the mean taken. It is then easy to reckon, first the number of viable bacilli in the sample drop, and next in a cubic centimetre of the original water. A few examples will show the practical employment of the process. A cubic centimetre of pure distilled water was estimated to contain four to six, derived from the air or admitted by other accident; water taken direct from the sewer, 38,000,000; the effluent from the filtering beds, 87,000; the same mixed with that of the Wuhle (in which chemical analysis showed it to have undergone considerable oxidation) at the point where this stream discharges itself into the Spree, 52,000;

the Spree above this point, 115,000, and below, 118,000; the water at the Stralau pumping station, before filtration, 125,000, and after filtration, 120; that of the Rummelsburger See (another of the water-supplies of the city), before filtration, 32,000, and after 100; and, lastly, good spring-waters 50 to 80. Of course the examination does not reveal anything as to the virulence or otherwise of the bacteria themselves; but, knowing, as we do, that they live and multiply in and at the expense of organic matter—in which they set up all putrefactive changes, including nitrification—we can appreciate the meaning of the reduction effected in their number by filtration, in the case of the sewage from 38,000,000 to 87,000, and of the potable water at Stralau from 125,000 to 120. Dilution of the effluent with the water of the Wuhle and its course therewith for a few miles still further reduced them from 87,000 to 52,000. Even before this the effluent contained fewer than the water of the Spree, on which it had no appreciable effect. The number (32,000) in the Rummelsburger See, a natural lake preserved from external pollution, presents a striking contrast to that of 120 in the filtered river-water at Stralau. And we may conclude that water used for drinking should not contain a number much greater than this. All these indications, we may add, were borne out by the chemical analysis.—*Medical Times and Gazette.*

## CATTLE DISEASE.

The *Civil and Military Gazette*, India, says:—"The Punjab is not the only province in India which suffered severely from cattle disease during 1880-81. The loss in Kulu and Kangra from rinderpest is put down in the recent 'Administration Report' as over 20,000, but in central provinces the number of deaths from cattle disease is said to have been nearly 60,000 in Hoshungabad, and 70,000 in Raipur alone; and this mortality is supposed to have been less than in the previous year. The cultivator of Central India is not a whit less apathetic than his brother in the north with regard to cattle disease. As in the case of famine, he considers the calamity to be a manifestation of divine wrath, and is pleased to shelter himself behind this plea, whenever efforts are made to induce him to separate or destroy diseased animals. The people confine themselves to such remedies as splitting

the ears, cutting off one inch from the tips, branding with a hot iron, and administering boluses of the white of eggs, spiders' webs, and the bark of trees. The Chief Commissioner referred during the year to Burmah, to ascertain what success had attended the establishment of a veterinary class there. The result was not found to be satisfactory, and Mr. Morris has fallen back on a recommendation to try to induce the people to house and feed their cattle better, and a hope that when the agricultural department is organised it will take the question up. The organisation of a veterinary college at Lahore is no doubt a step in the right direction for North India, but most of our readers will perhaps be disposed to agree with the opinion of the Government of India, as quoted by the Chief Commissioner, that 'the more active interference of the Executive seems amply justified.' We believe that legislation on the subject has been recommended to the Government of India, and it would certainly seem necessary that a simple Act, such as the 'Glanders and Farcy Act,' should be passed, under which a few simple rules could be prescribed for the separation of diseased animals from sound ones. There is no reason to believe that this would excite any opposition on the part of the people, when once they had seen the practical advantages of segregation, and Government could do more in this way to save the cultivator from loss, and improve his condition, than by all attempts to introduce foreign staples, or even the use of deep ploughing. The matter is one which ought to engage the serious attention of all local governments and administrations."

## THE CHEMICAL COMPOSITION OF FISH.

The subjoined table of fish analyses is taken from a paper by W. O. Atwater, in the *Berichte der deutschen chemischen Gesellschaft*, July 23rd, 1883, and published in the *Chemist and Druggist*, August 15th, 1883. The proteine is calculated by multiplying the amount of nitrogen by 6·25, the total of water, proteine, fat, and ash represents 100. The percentage of dry substance is given separately.

| | Per Cent. | | | | |
|---|---|---|---|---|---|
| | Water. | Dry Substance. | Proteine. | Fat (Ether Extract). | Ash. |
| FRESH FISH— | | | | | |
| Cod (*Gadus morrhua*), average of five samples | 82·04 | 17·96 | 16·38 | 0·36 | 1·22 |
| Herring (*Clupea harengus*) | 68·57 | 31·43 | 18·99 | 10·95 | 1·49 |
| Mackerel (*Scomber scombrus*), average of six samples | 73·10 | 26·90 | 18·57 | 7·07 | 1·26 |
| Perch (*Perca fluviatilis*), average of two samples | 79·20 | 20·80 | 18·73 | 0·83 | 1·24 |
| Pike (*Esox lucius*) | 79·73 | 20·27 | 18·66 | 0·58 | 1·03 |
| Salmon (*Salmo salar*), average of three samples | 62·93 | 37·07 | 22·93 | 12·81 | 1·33 |
| Sturgeon (*Acipenser sturio*) | 78·59 | 21·41 | 18·08 | 1·90 | 1·43 |
| Trout (*Salvelinus fontinalis*), average of three samples | 77·57 | 22·49 | 19·18 | 2·10 | 1·21 |
| Roes (hard), average of 245 samples | 73·19 | 26·81 | 21·34 | 3·89 | 1·58 |
| FISH WITH SPAWN— | | | | | |
| Salmon (*Salmon salar*), male | 75·34 | 24·66 | 19·17 | 4·37 | 1·12 |
| „ „ female | 78·34 | 21·66 | 17·66 | 2·83 | 1·17 |

| | Per Cent. | | | | | |
|---|---|---|---|---|---|---|
| | Salt. | Water. | Dry Substance | Proteine. | Fat (Ether Extract). | Ash. |
| PRESERVED FISH (smoked, dried, &c.)— | | | | | | |
| Cod (dried) | 2·88 | 14·75 | 85·25 | 75·41 | 1·84 | 5·12 |
| Mackerel (salted) | 10·60 | 42·57 | 57·43 | 21·34 | 22·80 | 2·69 |
| Cod (salted), average of two samples | 20·58 | 51·77 | 48·43 | 24·40 | 0·34 | 3·11 |
| Herring (smoked) | 11·66 | 34·38 | 65·52 | 36·76 | 15·74 | 1·46 |
| PRESERVED FISH (in tins)— | | | | | | |
| Mackerel | 1·93 | 63·38 | 31·62 | 19·69 | 8·70 | 1·30 |
| Pilchard | — | 56·62 | 43·38 | 24·98 | 12·76 | 5.64 |

## CONTAGIOUS DISEASES IN THE UNITED STATES—THE NEED FOR BETTER LEGISLATION.

Upon this subject the Editors of the *American Veterinary Review*, write—

"When calling the attention of our readers, in the last issue of the *Review*, to a recent resolution of the House of Commons in relation to animals affected with foot-and-mouth disease, we expressed the opinion that it was very doubtful whether this form of contagious affection could be found in the United States, and, in consequence, we could not consider this new restriction against our exportation other than an unjust and uncalled for action on the part of the English Government. The report, which we reprint to-day, of the Treasury Cattle Commission, which shows that careful examination and researches have been made all over the continent without detecting the slightest evidence of the foot-and-mouth disease, will certainly do much to show the impropriety of the action of the House of Commons towards American stock. But, if we felt indignant at the injustice of this proceeding, we could not refrain from demanding evidence of the necessity of measures which would do much to relieve our people from vexatious restrictions, and would aid in getting rid of contagious diseases as rapidly and as thoroughly as possible.

We have asked for the appointment of State veterinarians and of sanitary veterinarians, connected officially with Health Boards of States and cities, and peculiar circumstances have recently occurred, which show not only the importance of such appointments, but that of severe regulations, clothing such veterinarians with power such as they may need for the official performance of their duties. These remarks are specially suggested to us by the difficulties encountered by Dr. Paaren, in Illinois, which were of such a nature that he was compelled to call upon the Attorney General of the State for his opinion as to his rights and duties. A somewhat similar case recently presented itself in New Jersey; when, notwithstanding the mortality of long standing amongst a number of horses, the similarity and the nature of the symptoms in all the animals, the undoubted evidence of contagion, the positive assertions of several agreeing veterinarians as to the diagnosis, the port-mortem examination, &c., one individual resisted the official veterinarian, ignored his opinion, and, in fact, gave up his resistance only

when threatened to have his business stopped by order of the principal officer of the city—the Mayor. The fact that such malignant and contagious disease existed to the extent that it did, in Illinois and in New Jersey, and that there are only imperfect laws relating to the disposition of such diseased animals, calls peremptorily for measures of reform and improvement in that direction.

Veterinary medicine has made rapid progress on this continent within the last few years, but we believe there is nothing which will better serve to elevate it in the esteem and appreciation of Americans than the services it may render in promoting the national wealth. Acting in his proper sphere and capacity, the sanitary veterinarian, while properly armed with the authority of law, will not only look after the importation of contagious diseases from abroad, but will also be careful of the condition of the stocks at home."

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## NEW VETERINARY COLLEGE AND REGULATION OF THE PRACTICE OF VETERINARY MEDICINE IN CANADA.

THE Deputy Minister of Manitoba has sent us, *American Veterinary Review*, the following extract of recent legislation passed in that Canadian province, authorising the Board of Agriculture to establish a new veterinary college, and regulating the practice of veterinary medicine. The measures indicated are well calculated to check the growth of empiricism in that province.

### *Veterinary Science.*

The Board may establish a veterinary college for the instruction of pupils, may arrange for their examination, and grant diplomas certifying that they are competent to practise as veterinary surgeons. The Secretary-Treasurer of the Board is authorised to keep a register in which he shall record, on payment of a fee of $10 for each registration—which fee is to be devoted to the purposes of the Board—the names of persons desiring to practise in the Province as veterinary surgeons. The only persons entitled to have their names so recorded shall be graduates of the veterinary school established by the Board, who may have received the diploma previously referred to; persons who at the time of the passing of the Act were members in good

standing of the Veterinary Association of Manitoba; or persons possessing a diploma or certificate of admission to practise as veterinary surgeons in any part of the British Dominions by any body or association empowered by law to grant such diploma or certificate. Provision is made for the production to the Secretary-Treasurer, when a demand is made for registration, of the diploma or certificate upon which such demand is based, and the Secretary-Treasurer, after registration, is to issue a certificate of the fact to the person whose name is so registered. Persons having registered are entitled to professional fees in attending any court as witnesses in cases relating to the veterinary profession. Any person not so registered appending to his name the term veterinary surgeon, or an abbreviation thereof, or in any way leading people to infer that he is a veterinary surgeon, or who prescribes or administers medicine to animals for pay, or in any way practises as a veterinary surgeon, is liable to a fine of not less than $20 nor more than $100. Clauses 14 to 20 of Chapter 18, 24 Vic., have been repealed in accordance with these provisions."

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## SCOTTISH METROPOLITAN VETERINARY MEDICAL ASSOCIATION.

A QUARTERLY MEETING of this Association was held in the London Hotel, Edinburgh, on Wednesday, August 22nd, the president, C. Phillips, Esq., A.V.D. 3rd Dragoon Guards, in the chair. *Present*—Professors Walley, Williams, Baird and McQueen, Messrs. Borthwick, Black, Aitken, jun., Dalkeith, Boyd, Mitchell, Glasgow; Mitchell, Leith; Weir, Gray, Fairbairn; Mulvey, Hepburn, Cunningham, Young, Aitken, jun., Edinburgh, Connochie, W. O. Williams, Pottie, Cameron, some visitors, the representatives of the press, and the Secretary.

*Mr. Stewart*, M.R.C.V.S., Stirling, was elected a member.

### *Veterinary Inspectors.*

The *Secretary* (Mr. Rutherford) read a letter from Mr. Rolls, complaining as to a recent order in council by the veterinary department, which provided that any one registered as a practitioner under the Veterinary Surgeons Act might become a veterinary inspector, and Mr. Rolls asked the Association to protest against unqualified inspectors.

*Principal Walley* said he was afraid the Council would be averse to reopening the question. Some time ago he wrote the

Secretary of the Veterinary Department with reference to one or two inspectors who were merely students, and had not been in the profession more than two or three years, and he was quietly told that the registration committee had finished their labours, and the whole thing was closed.

Another member corroborated Principal Walley's opinion, stating that he also had written on the subject, and was told that the Department saw no reason for re-opening the question. Any application they might make should be to the Privy Council, and not to anyone connected with the Royal College of Veterinary Surgeons.

The *Chairman* suggested that they should delay consideration of the subjects till next meeting, and this course was adopted.

### *Interesting Specimens.*

*Mr. Boyd*, Melrose, exhibited a hook which he had invented for use in parturition.

*Principal Walley* brought under the notice of the meeting a case of supposed bone spavin in a trotting mare, and after the hocks had been fired it was discovered that the bone was fractured, although it was impossible to detect it before the firing.

The *Principal* also exhibited a portion of the kidneys of a horse in which there was an abscess, although the animal, when alive, showed no indication of disease.

*Mr. W. O. Williams* showed specimens of actinomycosis and bacillus of tuberculosis.

### *Castration of Rigs.*

*Mr. Mitchell*, Glasgow, read a paper on the castration of rigs, describing in detail the method he pursued, and giving practical hints for performing the operation. He did not approve the use of clams, and had discarded the standing position altogether.

*Principal Walley* strongly condemned the use of clams as barbarous. He had never seen a colt die from castration until he saw the caustic clam used.

*Mr. Cunningham*, Slateford, defended the use of clams as the best and safest method, and stated that there was no danger of hernia or of the intestines coming out, as seemed to be feared by some, if the operation was properly performed.

*Principal Williams* said he had observed pain in some cases where the caustic clam was used, but he thought it was caused more by a mistake in the operation than anything else. He objected, however, to the use of the spreader introduced by Farmer Miles.

*Mr. Mitchell* replied on the discussion, and spoke in favour of the spreader.

### *The Consumption of Animals killed for Foot-and-mouth Disease.*

*Principal Walley* read a paper on "The Consumption of the

Viscera and other parts of the body of Animals that are affected with the Foot-and-mouth Disease." After criticising the evidence given in the recent action instituted in the Glasgow Sheriff Court, wherein the fleshers of Glasgow sought to hold the magistrates liable in damages for the destruction of heads, tongues, feet, and tripe, and in some cases of the hearts of animals which had been suffering from the disease, Principal Walley maintained that no single instance had been adduced of actual injury resulting to any person from eating the flesh of animals suffering from foot-and-mouth disease. He proceeded: —In Glasgow the tongue, head, heart, feet, stomach, and intestines are all condemned; in Edinburgh I advised the inspector of the abattoir to condemn the feet, the stomach, and intestines whenever lesions were exhibited in them, and the tongue when markedly affected—when only slightly, the involved part to be removed with the knife, the healthy part to be passed. At Deptford, I am informed by Professor Duguid, neither the feet, tongue, nor tripe are condemned—they are allowed to macerate in a strong salt-brine for a few hours, and then treated in the usual way. At Liverpool and Birmingham the tongue, feet, and stomachs are condemned. From the advice given by me to the inspector here, you will see that I approve of the confiscation of the tongue in marked cases, and of the feet and tripe when affected. In reference to the latter, we find, practically, that gastro-intestinal lesions are not common, they are only seen in cases where the disease has been suppressed, or in those of a very severe character; consequently I advised that the stomach and intestines be destroyed when lesions exist, but I hold that the destruction of the head or the heart is wanton waste; and if the head and the heart, why not the liver and the kidneys?—organs of much greater vascularity, and, in the case of the latter, important emunctories. Why, indeed, should not the whole carcase be condemned, seeing that the blood circulates everywhere? One medical witness said *that if he had his own way he would condemn the carcase in all cases.* I fancy he is a bolder man in the witness-box than elsewhere, and certainly if he carried his opinions to such an extremity he would be laying himself open to the charge of wilfully destroying a large amount of good and wholesome animal food; and if such opinions were universally acted upon when foot-and-mouth disease existed extensively throughout the kingdom, we should require to go farther than America for a sufficiency of animal food for the population of this country. Let us see how far there can be any probability of danger arising from the consumption of the different organs mentioned. We may dismiss the head and the heart with the remark that removing the tongue (and with it the glands intimately connected with it), these parts being purely muscular in their character, and consequently standing in the same position as the carcase generally, they cannot be separated from it. It is acknowledged by all pathologists that no virus with which

we are acquainted can withstand the effects of prolonged and excessive heat, especially moist heat, as in boiling. In order that it be properly cooked, the tongue of an ox requires to be boiled for a period of several hours at least ; and in the vast majority of cases this organ is subjected to the action of salt, or salt and saltpetre, for some days before being used, and not unfrequently dried and smoked. After it is boiled, the whole of the mucous membrane is stripped off. The stomachs in most places are first of all cleansed thoroughly from extraneous matter; they are then subjected to the action of hot water for a period sufficiently prolonged to enable the dressers to remove the epithelium and the superficial mucosa—a matter of some minutes' exposure to water above the boiling point; they are then thoroughly scraped, and afterwards allowed to macerate for some time in cold water, and in some districts maceration alone is not trusted to, but the organs are exposed to the action of a strong mixture of lime and water. In all cases before tripe is fit for consumption it requires to be boiled for at least 4 or 5 hours. The intestines of cattle, so far as I know, are never used for human food directly ; they are only employed as vehicles or envelopes in the manufacture of polonies and such like articles, and before being so used they are subjected to a complex process of exposure to lime, or lime and salt, with maceration until the mucous membrane is effectually destroyed by the process of decomposition. The feet are subjected to much the same process as the tripe, and every cook knows that before they can be utilised as food they require to be boiled for many hours. So that I hold that in all these cases the probability of deleterious matter of any kind preserving its nocuous properties is not merely a remote one, it is more than chimerical. Seeing, then, that the lesions in ordinary cases are merely superficial lesions, that no proof of an altered blood crasis exists in the blood itself or in the muscular tissues, that the organs in question are subjected to processes which preclude the possibility of any minute organisms retaining even the semblance of vitality before being used as human food, we can arrive at one rational conclusion, viz. that the wholesale destruction of them when unaffected is a wilful waste of animal food of highly nutritious quality; more especially since it has been shown that even uncooked milk and flesh, contaminated with some of the most virulent organic poisons, may be consumed by animals and man with impunity, providing no breach of surface exists in the alimentary mucous membrane—a remote contingency, to say the least of it.

Discussion having been invited—

*Mr. Pottie*, Paisley, said there should be an understanding in the profession as to diseases in animals that were really hurtful to human beings who consumed the flesh. He was very much struck with the evidence given in the Glasgow case by medical gentlemen who, he held, could not form a proper opinion as to disease in the lower animals. He found them very ignorant of

these matters, and it would be impracticable to follow out the opinions they gave. Foot-and-mouth disease had existed from time immemorial, and the carcases of animals suffering from that pest had been eaten without in a single case any bad results following. When it was efficiently cooked, all the diseased germs were destroyed.

*Principal Williams* said that if they were to proceed on the basis that cooking destroyed the virus of the diseased product of foot-and-mouth disease and pleuro-pneumonia, then they simply went upon the broad principle that, no matter what the diseased condition of the animal might be at the time of death, the cooking would make it fit for human food. They must either take that position or else condemn all the diseased portions of the animal. He did not know a veterinary surgeon who would assert that the lungs of such an animal, no matter how slightly diseased, could be eaten with impunity. He had no doubt the lungs of animals suffering from pleuro had been eaten without any deleterious effects; but he thought they should condemn all portions of animals suspected of being diseased. If they held the opinions enunciated that day, they were directly supporting the sale of diseased meat, for a butcher did not tell his customers that he had bought diseased animals at a reduced price, but he sold the meat at the same price that he obtained for the flesh of healthy animals. They ought, he thought, to set their faces strongly against the sale, for human food, not only of the tongues of diseased animals, but of all parts of the carcase which might be suspected to contain the germs of disease. Anthrax, one of the most fatal diseases that attacked the lower animals, had been eaten over and over again after being cooked, and without any contagion, but he held they were not justified in recommending as fit for human food the flesh of any animal that had died from that disease.

*Mr. Cameron*, Berwick-on-Tweed, thought they should not kill animals at all when suffering from foot-and-mouth disease. The application of carbolic acid was sufficient to effect the object in view.

*Professor Baird* said if they were to be killed and sold as human food, they should be ticketed as having been slaughtered for that disease; and he would ask Mr. Pottie if, going into a butcher's shop and seeing a carcase ticketed as that of an animal killed for foot-and-mouth disease, he would purchase that flesh at the same price and as readily as he would sound meat?

*Mr. Pottie.*—Quite as readily (laughter).

*Professor Baird.*—Well, I would not. My plan of dealing with the disease would be to separate the affected animals from those free of disease, and allow them to recover before slaughtering them.

*Mr. Pottie* said diseased flesh was being eaten every day, the best of the sheep that came into the market having diseased livers; while braxy mutton had been eaten from time imme-

morial. He defied them to produce a single instance where bad results had followed the eating of animals slaughtered for foot-and-mouth disease.

*Professor Baird.*—Why kill the animals for the disease if they will recover in a few days?

*Mr. Pottie.*—Because the disease is infectious, and people are naturally anxious to have the animals out of the way to prevent the disease spreading. I believe animals suffering slightly from foot-and-mouth disease are sold every day at as high a price as other beasts; and I have myself partaken of a diseased carcase, and never felt the least injured by it.

*Mr. Cunningham* said braxy was generally eaten in this country up in the hills, and the air there enabled them to digest anything—(laughter). He himself would not eat a piece of a diseased carcase, and he did not think it right that he should have to pay for it.

*Principal Walley*, in reply, protested against the tone that had been imparted to the discussion. He brought the question forward as a scientific one, and he also most strongly protested against the assumption that he supported the sale of diseased animals. He only asked if there was anything to prove that human beings suffered from using the flesh of animals suffering from foot-and-mouth disease, and he said there was not. Further, assuming that such portions of the carcase were used as food, there was no proof whatever that they would do harm after they had been subjected to the process of cooking. He also stated that butchers did not, as a rule, purchase animals suffering from foot-and-mouth disease at a much lower rate than they paid for healthy animals; and if they did, it was usually sold as second class meat. If a butcher ticketed a carcase as that of an animal killed through being affected with foot-and-mouth disease, nobody would buy it. It was a case of "where ignorance is bliss, 'tis folly to be wise." He did not support butchers in selling diseased meat; he merely asked the question —Have you any proof that such things as those he had alluded to can do any harm? and he said there was none.

Votes of thanks were given to Mr. Mitchell and Principal Walley for their papers, and the meeting separated.

R. RUTHERFORD, *Secretary.*

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## WEST OF SCOTLAND VETERINARY MEDICAL ASSOCIATION.

A MEETING of this Society was held in the Veterinary College, Glasgow, on Tuesday, September 18th, present, Mr. Pottie in the chair. Professor McCall; Messrs. Anderson, Mitchell,

Kerr, Constable, Lindsay, Peddie, Wyper, Dickson, Jarvie, Brownlie, Weir (Airdrie), Blue, Pollock, Frew, Tweedley, McLay, Sinclair (Cork), and the Secretary.

After some remarks from the chairman, and Messrs. Mitchell and Anderson, touching the state of the Society and the conduct of the late Secretary, the members proceeded to nominate and elect office-bearers for the ensuing year, with the following results:—President, Mr. Campbell, Kircudbright. Vice-Presidents, Professor McCall; Messrs. Anderson, and Robinson, jun., Greenock. Treasurer and Secretary, Mr. James Macqueen.

*Mr. Anderson, jun.*, proposed, and *Professor McCall* seconded, "That the names of the late treasurer (Mr. J. P. Prentice) and secretary (Mr. George Hill) be erased from the roll of members of the Society, and a vote of censure on their conduct inserted in the minutes. Carried unanimously.

The *Chairman* then submitted for discussion the subject of "Pink-Eye," in which a number of members took part.

J. Macqueen, *Sec.*

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# LAHORE VETERINARY SCHOOL.

(UNDER THE PATRONAGE OF THE PUNJAB GOVERNMENT.)

## PROSPECTUS OF THE LAHORE VETERINARY SCHOOL FOR THE YEAR 1883.

### Establishment.

*Principal and Professor of Veterinary Surgery and Medicine*, Inspecting Veterinary-Surgeon, G. Kettlewell, B.A., M.R.C.V.S., London.

### Classes and Subjects.

*Veterinary Surgery and Medicine.*—Professor G. Kettlewell.

*Bovine Pathology.*—

*Anatomy.*—Assistant Professor J. Burke.

*Physiology.*—

*Materia Medica.*—Rahim Khan, Khan Bahadur, Honorary Surgeon.

*Chemistry.*—Assistant Surgeon Ameer Shah.

*Clinical Medicine and Practical Surgery.*—Mr. G. Kettlewell.

*Cattle Practice.*—

*Principles and Practice of Shoeing.* — Assistant Professor Burke.

*Hospital Practice Daily.*

The Veterinary School has been established at Lahore for the

instruction of Natives in Veterinary Medicine and Surgery, with a view to their acting as Assistants to Veterinary Surgeons, or as qualified "Veterinary Assistants."

The total number of students is limited to 60 in each Session.

Lectures and instruction on all subjects embraced in this prospectus to be given in Urdu.

*Terms of Admission.*

Students must have a good character, be physically fit in constitution, with good sight; and they should evince some aptitude in the handling of animals.

The ages of Local and District students should be between 17 and 20 years of age. Military pupils should not exceed 25 years of age.

*Entrance Examination.*

Candidates for preliminary examination should present themselves one week before the Session opens, when a day will be fixed on which the Entrance Examination will be held.

Candidates must be able to read and write in the Vernacular (Urdu), and possess a fair knowledge of Arithmetic, &c., as given below.

1. Reading with fluency a passage of some well-known work.
2. Explaining the meaning of words and phrases.
3. Reading, with fluency, a passage written in a fairly legible hand.
4. Writing from dictation.
5. Arithmetic up to, and including, Fractions (Vulgar and Decimal) and the Rule of Three.

*Course of Instruction.*

The course of study to be for two years, including two Summer Sessions, and two complete Winter Sessions, and this period of study cannot on any account whatever be curtailed.

The Summer Session begins on the 1st May, and terminates on the 31st July. The Winter Session extends from the 15th October to the 15th April following.

Bi-monthly examinations are held on each course of lectures during the Session; but First Session Students will be exempt from this.

*Scholarships.*

Two Government Scholarships to be given, one at Rs. eight per month, and the other at Rs. six. to students who pass the best examination at the end of the first year, *i. e.* in the month of April of each year.

These scholarships may at any time be forfeited or diminished in value, in consequence of idleness or misconduct.

*Final Examination.*

The final examination will be held in the month of April in each year, after the close of the Winter Session. Students who pass this examination successfully, will be admitted to the grade of 1st and 2nd class "Veterinary Assistants," according

to the marks obtained. Pupils failing to pass the final examination in April, will be required to attend one session more before they can present themselves for re-examination.

G. KETTLEWELL,
*Principal, Lahore Veterinary School.*

LAHORE,
1*st May*, 1883.

The following letter has been addressed by the Government to the Principal, replying to his first annual report:

Sir,—I have the honour, by desire of the Hon. the Lieutenant-Governor, to reply to your letter No. 138, dated 18th May, 1883, forwarding the report on the Winter Session of the School in 1882-83.

2. His Honour, I am to state, considers this report satisfactory.

The Lahore Veterinary School, which was sanctioned in Government of India, Military Department, letter No. 1094, dated 7th November, 1881, has now completed the first year of its existence. Some delay in the commencement of the School arose from the difficulty experienced in the Public Works Department in finding space and the necessary buildings in a convenient locality; but a site was eventually purchased close to the new Medical College, and temporary hospitals were constructed. Some permanent buildings for the forge and dissecting room have since been completed; more appear to be required, and the various requisitions contained in the fifteenth paragraph of your report will be submitted to the Public Works Department for consideration.

The School was opened on the 3rd of May, 1882, by yourself as Professor in charge, with Mr. Burke, Assistant Professor, who, with 44 students, had been transferred from Hapur to Lahore, on the removal of the Remount Depôt, Hapur. Seven students joining the School, made a total of 51 students at the commencement of the Summer Session; 17 more joined for the Winter Session, and 6 withdrew.

The Summer Session lasted from 3rd May to the 29th July, 1882, the Winter Session from 16th October, 1882, till 7th May, 1883, when the examination commenced.

It appears that 38 students were examined, of whom 30 obtained first class certificates, 6 second class, and 2 failed.

3. The Lieutenant-Governor, I am to state, is well satisfied with this result. Considering the backward state of some of the students at the commencement of the Session, and the low educational attainments of others, and the difficulties incidental to organising a new college or school, as fair an amount of success as could be looked for in the first year has been attained.

4. The course of study, his Honour remarks, was sufficiently extensive, and your conduct of it was eminently practical.

It embraced Veterinary Medicine, Surgery, Anatomy, Physiology, Chemistry, and Bovine Pathology.

Clinical lectures in hospital (including both horse and cattle diseases) and shoeing horses.

During the first session the hospital practice was limited, but in the winter there were 109 admissions to hospital, of which 71 were discharged cured or relieved, besides 1019 out-patients; but the latter number includes the number of times each out-patient was brought to the school for attendance.

The steady manner in which the practice at the Horse Hospital has increased is shown by there having been only 20 admissions during the first three months and 87 in the last three.

In the Cattle Hospital, which was only open during the last two months of the Session, there were 16 admissions, of which 13 were discharged cured or relieved.

There were 42 surgical operations during the Winter Session, including 24 castrations.

This course will, it is expected, be found to have fitted those students who have passed out of the school as veterinary assistants to be of real service in their regiments or districts.

5. The Lieutenant-Governor is prepared to accept the change proposed by you in the 16th paragraph of your report, to the effect that students shall only be admitted at the beginning of the Summer Session. District officers will also be asked to be careful in the selection of the students they send to the school.

6. In regard to the entrance examination, the Director of Public Instruction will be asked to furnish an Examiner. His Honour is not inclined at this stage to insist upon a more severe preliminary test, nor does he recommend a more prolonged course of study than the two years' course originally fixed upon.

The Examiners recommend these changes, as they considered them necessary in order to arrive at entirely satisfactory results. But it must be borne in mind that the aim with which the Veterinary School was instituted was a moderate one.

It was, in the words of the Committee, "to provide a class of men who will be satisfied with moderate pay, who can act as assistants to veterinary surgeons, and can take the place of the existing empirical class of salutris." ('Report of Special Committee,' dated 7th March, 1881, paragraph 6.) "If hereafter," it was remarked, "a demand should arise for a higher and more scientific education, an arrangement can be made to give the best of the students a more prolonged course of study."

It is by no means certain as yet that such a demand exists, and a few years must probably elapse before it can be seen that the Government and the public are prepared to pay the higher fees that would be involved in the employment of veterinary assistants whose course of preparation had been longer and more expensive.

His Honour thinks that the present entrance examination, if properly carried out, will be sufficient. — *Civil and Military Gazette* (Lahore).

# Veterinary Jurisprudence.

## SOUND OR DISEASED PIGS.

SOUTHAMPTON COUNTY COURT, *August* 21*st*.

Before Judge LEONARD.

ALFRED WITHERS *v*. G. J. GOULD

MR. BELL appeared for plaintiff, a *cattle-dealer*, of Freemantle, and Mr. A. W. PEARCE for the defendant, a *veterinary surgeon*, of Southampton.

The Plaintiff claimed £10 damages sustained by reason of the alleged unskilful and negligent condemnation and seizure by defendant of five of the plaintiff's pigs while acting as an inspector under the Contagious Diseases (Animals) Act and Order.

*Mr. Bell*, opening the case, said he presumed the defendant was shut out from proving that the pigs in question were actually diseased, because the authority to determine that had already held they were not, but if such evidence was called the plaintiff was prepared to meet it.

His *Honour* said he had no power to review the decisions of the magistrates.

*Plaintiff* said that on the 27th April he drove into Southampton market five pigs, between half past nine and a quarter to ten. They had come by rail that morning from Romsey, where he had bought them in the open market the day before. The road from Romsey market to the railway-station was very gravelly. Almost as soon as the pigs were in the market Mr. Gould asked whose they were, and witness replied his. He looked at them, and said they were all right, and then coming to a small hog pig in the next coop, which was foaming at the mouth a bit, said they had foot-and-mouth-disease, and put them under the care of the police. He advised defendant to go and try and sell the animals, but witness refused, and then a man named House went with defendant to Rose, in the Ditches, and the pigs were sold there at 11s. a score. They were worth 12s. a score. They weighed twenty-two score odd.

His *Honour*.—How do you make up your damage: that would be only 22s.

*Plaintiff* said that apart from this he was put to expense by running about getting them weighed, waiting about, and so on.

*Mr. Bell*.—What expenses?

*Plaintiff*.—I can't exactly say.—He added that he was served with a summons to appear before the magistrates, and the case came on on the 5th and 12th May, and was dismissed. He had Superintendent Kellaway, Mr. Maynard, Mr. Rose, Mr. House, and others, in attendance, and had to pay them, the expense being over £10.

His *Honour* said the particulars did not claim consequential damages.

*Mr. Bell* replied that surely his Honour would not shut him out for the omission of a word.

His *Honour*.—But the magistrates may have ordered them to be paid.

*Mr. Bell* rejoined that the magistrates never, when dismissing a summons, ordered payment of costs.

Some argument ensued, and his *Honour* suggested that taking the extreme case plaintiff could not be entitled to more than £1 2s. He did not know why the magistrates dismissed the case, and he certainly should not allow the costs incurred there. Mr. Bell said the same evidence was laid before the Bench that he should call to-day. If the particulars did not cover a claim for the cost of the magisterial proceedings, he hoped His Honour would allow him to amend, as defendant well knew that he was summoned for damages for unskilful conduct.

In reply to *Mr. Pearce*, plaintiff said defendant ordered the pigs to be slaughtered, and witness consented. He did not hear him say he could either have them slaughtered or taken to some safe place. House arranged the price with Rose, and had the money; but never said he was satisfied with the price. Never told Inspector Peet so. There was a subscription for the expenses of the case, but witness had only 28s. or 30s.

*Mr. Bell*.—You can't claim the benefit of that.

*Mr. Superintendent Kellaway*, of Romsey, inspector under the Act, said he saw the pigs on the day Mr. Gould condemned them. They had not foot-and-mouth disease. They were bought at Holloway's farm, about half a mile from the station, and the road there was newly stoned. In consequence of a telegram from the Town Clerk, witness inspected Holloway's premises, and found no foot-and-mouth disease there; and the pigs were remaining in the same stye as those in question came from. Witness, when he first saw the pigs in company with Mr. Gould, thought they had the disease, but he afterwards altered the opinion when he found the road the animals had to travel over.

*Mr. Holloway*, a cowkeeper, of Romsey, of whom the pigs were bought, said they were perfectly healthy. He had the remainder of the stye now, and they were perfectly free of disease.

*Mr. Frederick Maynard*, veterinary surgeon of Romsey, said the pigs had not the disease; all he could detect was that the pad of the foot was cut. The witness was cross-examined as to the symptoms of the disease, and was asked by Mr. Pearce if he was a member of the Royal College of Veterinary Surgeons. Mr. Maynard replied that he was not; he was a registered veterinary practitioner.

*Mr. Bell* asked what was the good of raising that old question. Veterinary surgeons of a certain number of years' practice were allowed to be registered under the recent Act.

*Mr. Pearce*.—But they don't carry the same weight as a member of the College.

His *Honour* said he disagreed with that; he would as soon take the evidence of a farmer or pig dealer as that of a veterinary surgeon, as to whether an animal was suffering from foot-and-mouth disease.

*Mr. Pearce*, in defence, urged that defendant was acting in the discharge of his duty as a public officer, and unless a malicious motive was shown no action could lie. He should, however, prove that the animals were really suffering from foot-and-mouth disease.

The *defendant* said he was a M.R.C.V.S., and had been inspector for that borough, and two of the largest divisions in the county, for over seventeen years. Had seen thousands of cases of foot-and-mouth disease. Was in the market on the day in question, with Captain Fellows, of the Privy Council Office, and examined these pigs, and found them suffering from foot-and-mouth disease. He described the symptoms in detail, and said the animals could not stand; directly they were left, they went and laid down in a corner. He saw defendant, and asked where they came from, and he said Romsey, but refused to give the name of the person from whom he bought them. Witness put them under the care of the police, went to the Town Clerk's office, and a telegram was sent to Romsey. He returned to the market, read the clause to defendant, and told him he could either have the pigs slaughtered or isolated, and he would not make up his mind, and did not do so till six o'clock, when he said he would sell them to Rose and Rogers.

By *Mr. Bell.*—Was not prepared before the magistrates for the evidence of Mr. Kellaway, the superintendent, who when he saw the pigs said he was much obliged to the witness for having stopped them, but he changed his mind in the meantime.

*P.C.A. Springer*, who took charge of the pigs, said one of them foamed at the mouth, and they had blisters under the foot.

*Mr. Irish*, veterinary inspector, three years Government inspector at Liverpool, expressed the opinion, from a description of the symptoms, that the pigs were affected with foot-and-mouth disease.

By *Mr. Bell.*—Was now in practice at Bishop's Waltham, and had heard nothing of the pigs till that morning. The vesicles spoken of were one of the principal symptoms. The disease varied in period of incubation, from twelve to twenty-four hours, according to the susceptibility of the animal.

*Mr. John T. King*, of Bournemouth, M.R.C.V.S., said that from the evidence he had heard he should think the pigs had foot-and-mouth disease—most undoubtedly.

*Mr. J. B. Blake*, M.R.C.V.S., of Ryde, gave similar evidence, saying that from the constable's evidence, with the statement of Mr. Gould, he considered they were suffering from the disease.

*Mr. J. H. Gould*, defendant's brother, M.R.C.V.S., of Southampton, formerly Government inspector at Holyhead, said he saw the pigs in question. They were suffering from the disease—he could say this from the diagnostic symptoms as to whether the disease affected the body for eating purposes; it was a

question not decided by pathologists. The law allowed the flesh to be consumed as food.

His *Honour* asked if he was going to call the butcher, and Mr. Pearce said that Rose was no witness of his. Mr. Bell said he was ill.

His *Honour* said that upon this evidence he could come to no other conclusion than that the pigs were suffering from foot-and-mouth disease no more than he was at the present moment. It appeared to him that Mr. Gould himself was rather uncertain upon the point; if he was not, why call his brother in?

*Defendant.*—I did not call him in; he happened to be in the market.

His *Honour* said the measure of damage was the difference between the price plaintiff said he could have obtained for the pigs and that they were sold for, and he should therefore give a verdict for £1 2s.

*Mr. Bell* asked for the costs of witnesses, which His Honour granted, and said that if the pigs were really in the condition described the meat was simply poisonous, and should not have been sold.

*Mr. Pearce* said the judgment was a serious one, as affecting Mr. Gould's position, and he asked His Honour for leave to appeal.

The *Judge* asked on what grounds?

*Mr. Pearce* said on the grounds of the evidence being insufficient.

His *Honour* said he could only grant an appeal upon a question of law, and as Mr. Bell had left, he would grant an appeal upon the full costs being lodged in Court. Ultimately it was left for Mr. Pearce to give notice, the matter to be mentioned, by leave of His Honour, next Court day.

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## EXPOSING DISEASED CATTLE IN A MARKET.

An important case to cattle-dealers was heard, September 24th, at Canterbury before the city magistrates.

*Mr. William Maxted*, of Bromstone, Ramsgate, was summoned for having on September 10th exposed for sale at the Canterbury Fat Stock Market five bullocks affected with the foot-and-mouth disease.

The prosecution was taken at the instance of the Canterbury Cattle Diseases Committee, and was supported by the Town Clerk, who, in opening, referred to the gravity of the charge, and appealed to the Bench to inflict the full penalty.

*Mr. W. H. Crowhurst*, M.R.C.V.S., the local inspector under the Contagious Diseases (Animals) Act, proved the charge, stating that the disease in four out of the five animals was very pronounced, and had ordinary precaution been used, it ought to have been detected before they were placed in the market.

*Mr. Maxted* denied all knowledge of the existence of the dis-

ease, and added that by its discovery he had lost a considerable amount through the deterioration of his stock. He purchased the animals at Leicester, where they were examined, and he examined them two days before they were exposed for sale at the Canterbury Market.

The Bench held that the defendant had not used proper precaution, and reminded Mr. Maxted that his negligence might have resulted in the local markets being closed. He was fined £12 10s. and costs. Notice of appeal was given.

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# MISCELLANEA.

## AMERICAN CATTLE SHIPS.

A WRITER in the *Standard*, describing a voyage in a cattle ship from Montreal, gives the following statement as that of a "cattle hand":

"Most of the cattle are put on the lower deck, and the sheep on the upper. A windsail is rigged up for the cattle, to give them air, and they get along comfortably in fine weather. The sheep are more delicate: if it is too hot they die off; if it is too cold they die off. Every morning you are safe to find one or two of them dead in the pens. . . . It is a curious thing, but a true one (most sea captains will tell you the same), that sharks are getting common in the Atlantic since the commencement of this cattle trade. They follow the ship at a distance, and snap up the carcases thrown overboard."

It is curious that the humanitarians in this country, who are so anxious to kill cattle by electricity, or by other means by which pain is minimised, have nothing to say about the horrible cruelty of the ocean transit of cattle and sheep. The other day the papers contained the report of the disabling of a cattle ship from the United States, when all but 36 out of 170 cattle were washed overboard or killed.—*Mark Lane Express.*

The *New York Shipping List* states that "the shipments of American cattle to Great Britain have been large in the aggregate thus far during the season, and as quite a number of steamships are under charter at 70s. to 10s. per head, it is safe to say that a larger number will be shipped in 1883 than in any previous year. American beef has grown steadily into popular favour in the chief cities of Great Britain, whether exported on the hoof or dressed and in refrigerators. Our returns show that in 1882 we exported to Great Britain 6,959,000 dols. worth of horned cattle and 6,328,000 dols. worth of fresh beef. The present year will show a considerable increase over these amounts."

## THE STOCK YARDS OF CHICAGO.

EVERYBODY who visits Chicago is expected to spend a day at the stock yards. These stock yards, situated a few miles from

the centre of the city, and covering many acres of ground, are probably the largest cattle markets in the world. Thousands of catttle, sheep, and pigs are there bought, sold, and slaughtered every day. I was conducted through the vast hog-killing establishment of the Messrs. Armour, the gentlemen who cornered the pork market a few years ago, and realised I know not how many million dollars by the transaction. It is a sight to be seen once, and only once. The pigs, or hogs, as they are called in America, are slaughtered, scalded, scraped, quartered, and prepared for the market—all in the space of a few minutes. The doomed animals are hung up by one leg to a sliding hook, then passed on to the sticker, then plunged into boiling water, then scraped by machinery, then disembowelled, and then sent sliding down an inclined rod to another part of the establishment, where they are chopped into hams and shoulders and sides. Even after the scalding and scraping process had been completed the carcases continued to quiver. The appearance of the man who struck the death-blow with the steadiness and regularity of a machine, as he stood in a pit covered with blood and up to his ankles in steaming gore, was the most horrible that can be well conceived. The thought crossed my mind, as I looked at him, that he would just as readily and as steadily cut the throats of so many human beings for a given number of dollars a day. All the men about the place, indeed, had a forbidding aspect. And the nature of the occupation has affected the character of the persons engaged in it; for I was told by the gentleman who acted as conductor that many of the men were jail-birds, and that it was dangerous for a stranger to show himself in the neighbourhood after nightfall. I was glad to get away from the hideous scene; but the sickening odour of the shambles remained with me for the rest of the day. Connected with these establishments curious stories are told of the effects produced on a certain class of persons who visit them. Draughts of warm blood are recommended by some of the faculty in Chicago as a remedy for consumption. Hence has arisen the custom of going to the stock yards for the purpose of quaffing the dreadful liquid. Tender and delicate ladies are among the patients who sometimes try this disgusting remedy. My conductor, who had studied medicine at Yale or Harvard, informed me that the feeling of revulsion soon passes away, that the patients get to like the drink, and that the artificial appetite it creates is even more overpowering than the passion for alcohol! I could not help thinking of the story of the pet tiger whose savage instincts were suddenly aroused by the taste of the blood he had licked from his master's hand. The experience of consumptive persons at the stock yard seems to indicate that mankind, even young and refined ladies, are not, after all, much removed from the beasts of the forest.—From *Our American Cousins.* By W. E. Adams.

THE

# VETERINARIAN.

VOL. LVI. No. 671. NOVEMBER, 1883. Fourth Series, No. 347.

## Communications and Cases.

### OPENING OF THE SESSION AT THE ROYAL VETERINARY COLLEGE.

In accordance with established custom the sessional course of instruction at this Institution was begun on October 1st.

The introductory address was delivered by Mr. Henry Power, M.B. London, F.R.C.S., the College Professor of Physiology. There was a large gathering of friends of the institution, members of the profession, and old and new students, and altogether the meeting lacked none of the *éclat* which has for so many years marked the opening of the session at this the *alma mater* of the veterinary profession. The chair was occupied by Lord Norreys, who was supported by Lord Arthur Somerset, Mr. Harpley, and Mr. J. Collins, Governors of the College, also by the Principal, Professors, and Teachers, the Veterinary Surgeon-General of the Army, &c. One familiar face was, however, absent, namely, that of the late Principal, Professor Simonds, who, for the first time for the long period of forty-seven years, was, we regret to say, unable to be in his place.

"The lecturer, after congratulating the students upon the cheerfulness and zest with which they resumed their work, and which he trusted would be equally felt towards the close of the session, when the examinations, instead of being a mere speck on the horizon, loomed near and dark, lightly sketched the course of study through which they had to pass to become veterinary surgeons, remarking that the most important part of it was not

the mere acquirement of the names of a number of diseases with a series of prescriptions supposed to prove effective in curing each, but rather the acquisition of the mode of investigation pursued by their teachers, for they would find that in practice few cases of a typical character presented themselves, the majority having complications which obscured or altogether concealed the primary disease. He quoted a passage from Professor Robertson's 'Equine Medicine,' where, in speaking of glanders, he stated that it might seem to the uninitiated a strange matter that in a disease so generally accepted as malignant there should be room for doubt as to its existence, but it must not be forgotten that not a few developments of the disease are so insidious as to mislead or cause the most competent investigator to hesitate. Those who had had large experience learnt to discriminate between the essential and the non-essential features of a disease, and could often leap to a right conclusion, but for those who were beginning practice it was more prudent to examine each of the great functions of the body in regular sequence, and thus discover what organ was at fault. But in order to do this properly and well it was absolutely essential that they should possess a sound and practical knowledge of the several organs of the body in health, or, in other words, to study anatomy and physiology, which were rightly termed the foundations of all medical science. He only feared that the time at their disposal would be found too brief to enable them to acquire the knowledge they ought to carry away with them. No one would think it prudent to commit a chronometer when out of order into the hands of the village blacksmith; yet no comparison could be instituted between the most complicated and cunningly contrived piece of mechanism and the animal body, with its numerous interdependent parts acting and reacting on each other in the most intricate manner. But the watchmaker requires some five or seven years to learn his trade, and three or four are all that are usually at the disposal of the veterinary student. How important was it that they should waste no time, but take advantage of the means of instruction which surrounded them on every side! He recommended them to begin their work in each subject by thoroughly mastering the contents of some small book, when they would feel that they had made some advance, and that they had acquired a general conception of the whole subject. He thought that some of the discouragement that was apt to be felt when the first novelty of their work had passed off was due to the impression that the demand on the memory was too great to be overcome, and that it was useless to attempt to master so many details; but they would find that these details materially elucidated each other, and fitted into the general

scheme, and that if time were given to them they gradually cohered in the mind into one harmonious whole. It was this which made the difference between steady and continuous work and the process of cramming, for in the latter a large number of facts were driven into the student in a short time, and, being ill-digested and having little relation with each other, they were forgotten as soon as they had served the temporary purpose of enabling him to pass his examination. Whilst recommending the younger students to occupy their time with the study of their profession, he thought they might, with advantage, if they found they had spare time, cultivate music and drawing. The mind, like the body, requires rest, and such resources as these made and strengthened friendships, and in the case of drawing might be of great service in enabling them to recall to their memory important cases that would otherwise be forgotten.

"Addressing the older students, the lecturer insisted that they should not leave the College without being thoroughly familiar with all practical work. There could not be a doubt that much was lost to science, because the surgeon under whose care the case falls is unable to mount a specimen, to make a chemical examination of a fluid, or to employ the various instruments now in common use in every school. Good cases, as they were termed, did not always come to the Veterinary College; they sometimes made their appearance in remote parts of the country, and were lost because the practitioner was too ignorant or too lazy to investigate and report upon them. He pointed out the important bearing which the pursuit of animal anatomy, physiology, and the knowledge of the diseases of animals had upon human medicine and surgery. A large proportion of the facts in these subjects, which were regarded as most firmly established, and were incorporated in every medical work, were derived from observations and experiments on animals. Our knowledge of the circulation of the blood dates from the time when Harvey opened the chest of a living animal. The physics as well as the chemistry of the respiration were chiefly worked out upon animals by Malpighi, Mayo, Hooke, Hales, and Haller. It was in a dog that Aselli first saw the lymphatics and lacteals of the mesentery. Animals supplied the materials which enabled Malpighi to give an accurate account of the skin and mucous membranes. It is from experiments on animals that nearly all our knowledge of animal heat has been derived. The principal facts that are well substantiated in regard to the nervous system, again, have been obtained from the researches of a multitude of observers on animals. Indeed, of late years it might rather be asked, What subject has not, rather than what has, been elucidated by investigations undertaken upon animals? Yet, whilst

acknowledging that much had been done, he still desired to press upon them the imperfection of our knowledge on many points, and he instanced splenic fevers, the *Milzbrand* of the Germans, and *maladie charbonneuse* of the French. How many points are still unsolved which only require patient and skilled observation to clear up? What is its origin? How is it communicated? Can an animal be vaccinated with it with safety? Is one vaccination sufficient, or are two required? For how long does vaccination confer immunity? Why are some animals, like the Algerian breed, more refractory to an attack than others? It is generally admitted that the virus is a peculiar small bacillus, but where does this originate? Is it, as some thought, indigenous in hay? Can it be brought to the surface of the earth from infected buried carcases, as Pasteur believes, by means of worms, and ingested into the body through the agency of worm castings? Are bacilli always present in the disease when at its height, or do the bacilli sometimes, as Cohn maintains, break up as soon as formed into micrococci? Are the stages given by Davaine in accordance with fact? First, a pustule containing the virus; then a stage in which an œdematous condition is established around the pustule, the fluid containing the poisonous bacteria in abundance; and, finally, the generalisation of the disease through the system. If true, what important hints for treatment are afforded! Again, how far are Pasteur's later statements accurate, that the development of the disease is to an important extent dependent on the temperature to which the animal is exposed, so that an attack can be induced in a fowl which is not otherwise amenable to the disease by the simple process of exposing it to damp and cold before inoculation, whilst when the animal is sick and like to die its life can be preserved by raising its temperature to the normal standard, by exposing it to heat, which proves fatal to the bacillus? These and many other questions can be asked in regard to this disease alone. What fields, then, there still remain open to research, and what important results—even to mankind, as in the case of trichiniasis—may result from a single observation carefully made and clearly understood. He further pointed out that it was not even necessary, though it was often advantageous, to have the works of others before their eyes. A notable example was in the case of M. Pasteur, who, when solicited by M. Dumas to undertake the investigation of the silkworm disease, replied that he had never so much as seen a silkworm. 'So much the better,' said Dumas; 'you will commence your investigation unfettered by preconceived opinions;' and Pasteur was not slow to feel the truth of the remark. In conclusion, he exhorted them to work, not with examination in view only, but with the desire of making

hemselves thoroughly familiar with their profession, and capable of practising it without feeling that they had wasted their time and neglected their opportunities—the golden opportunities which they now enjoyed, and which would never return."

At the conclusion of the lecture the Chairman distributed the Medals, Class Prizes, &c., to the successful competitors.

## AWARD.

### Coleman Prizes.

| | |
|---|---|
| *Silver Medal* | Mr. Layton J. Blenkinsop. |
| *Bronze Medal* | Mr. John Morton. |
| *Certificates of Merit* | Mr. E. H. Hazelton.<br>Mr. W. H. Bloye. |

### Cattle Pathology Prizes.

| | |
|---|---|
| *Silver Medal* | Mr. John Morton. |
| *Certificate of Merit* | Mr. E. Whitley Baker. |

### Scholarship.

| | |
|---|---|
| £25 *per Annum for Two Years* | Mr. Alfred Cawdle. |
| *Very Highly Commended* | Mr. G. H. Gibbings. |

### Class Prizes.

#### CLASS C.

| | |
|---|---|
| *Hippo-Pathology* | Mr. W. H. Bloye. |
| *Cattle Pathology* | Mr. Layton J. Blenkinsop. |
| *Morbid Anatomy* | Mr. J. Morton<br>Mr. H. Axe } *eq.* |
| *Helminthology* | Mr. Layton J. Blenkinsop<br>Mr. W. H. Bloye } *eq.*<br>Mr. A. Hassall, 2nd Prize. |

#### CLASS B.

| | |
|---|---|
| *Anatomy* | Mr. Edward Taylor. |
| *Histology* | Mr. Edward Taylor. |
| *Physiology* | Mr. Edward Taylor. |

#### CLASS A.

| | |
|---|---|
| *Chemistry and Toxicology* | Mr. W. Littlewood. |
| *Materia Medica* | Mr. M. G. Byerley. |
| *Practical Chemistry* | Mr. E. R. Smythe. |
| *Botany* | Not decided. |

Certificates of Distinction for passing Superior Examinations were also awarded to

Mr. W. H. Bloye. | Mr. J. G. Parr.

The following gentlemen were likewise awarded Certificates for Attendance as Assistant Inspectors at the Royal Agricultural Society Show at Reading, 1882:

Mr. W. H. Bloye. | Mr. J. Morton.

The Smithfield Club Attendance Certificate was awarded to

Mr. L. J. Blenkinsop. | Mr. S. J. Marriott.

In addition to these, the Principal announced that the following Certificates had been awarded to the office-bearers :

MONITORS.

| | |
|---|---|
| Baker, E. W. | Nuthall, C. E. |
| Blenkinsop, L. J. | Parr, J. G. |
| Bloye, W. H. | Pinel, H. E. |
| Bull, W. R. | Raymond, R. W. |
| Morton, J. | Twiss, J. T. |

CLINICAL CLERKS.

| | |
|---|---|
| Baker, E. W. | Morton, J. |
| Blenkinsop, L. J. | Nuthall, C. E. |
| Bloye, W. H. | Page, C. W. |
| Bull, W. R. | Parr, J. G. |
| Daly, J. V. | Pickering, G. T. |
| Evans, E. P. | Pinel, H. E. |
| Hartley, C. | Robinson, N. |
| Hazelton, E. H. | Shaw, W. F. |
| Hill, R. | Smith, T. A. |
| Marriott, S. J. | Twiss, J. T. |

PROSECTORS.

Blenkinsop, L. J. | Nuthall, C. E. | Pinel, H. E.

In addressing the students, the Chairman remarked that while acknowledging indebtedness to the Lecturer for the felicitous and suggestive address, he could not refrain from first congratulating the veterinary students of the present day upon the advances which had been made in their profession ; and secondly, counseling them to keep moving onwards in accordance with the demands of the present.

To be appreciated, they must prove themselves adequate to meet the demands which might be made upon them. Those demands, he might say, were not only varying, but increasing from year to year.

A vote of thanks to the Chairman for presiding, proposed by the Principal, was carried by acclamation.

This being acknowledged the meeting broke up.

# ON PLANTS IN RELATION TO ANIMALS.

By Professor James Buckman, F.G.S., F.L.S., &c.

(*Continued from* p. 669.)

The genus Valerianella is only a diminutive of Valeriana, as its appearance is much that of a small Valerian. It is distinguished as follows :—Calyx limb, generally irregular, of one to six teeth, not spreading out into a pappus in front. Corolla funnel-shaped ; tube not spurred at the base ; limb five-lobed with lobes blunt. Stamens, three ; fruit three-celled—two of the cells empty, the third with a single seed.

Annual herbs with dichotomous stems, and entire or pinnatifid leaves. Flowers in cymose ; breacteated heads, lilac or white.

They are small plants, and for the most part denizens of cultivated districts, into which they seem to have been introduced from the Continent as salad herbs. There are two species mentioned in our garden directories, namely :—

*Valerianella Olitoria*, English Corn Salad.

*Valerianella Eriocarpa*, Italian Corn Salad.

They both are much alike in flavour, being indeed innocent herbs, which at one time were more extensively employed than at present as antidotes to those distressing scorbutic complaints so prevalent when meat diet, and that mostly salted, was the common food of the people. Now our large variety of vegetables are found to be as salutary as they are agreeable.

Mr. Lindley, in his cultural directions for corn salad, says :—"The seeds of both the above sorts may be sown in August for winter and spring use ; they may either be sown broadcast, or in narrow shallow drills ; and when the plants are an inch high they should be thinned out to the distance of three or four inches from each other." *

Mrs. Lankester discourses upon the English Lamb's-Lettuce as follows :—

"This plant was formerly classed with the Lettuces and called *Lactuca agnina*, from appearing about the time when lambs are dropped. According to other writers it is a favourite food of lambs. The young leaves in spring and autumn are eaten as a salad, and are very excellent. A small portion of garden earth sown with the seeds in August will supply an excellent portion of this salad throughout the winter. It is commonly known as Corn Salad. Gerarde tells us that foreigners

* Lindley's 'Guide to the Orchard and Kitchen Garden,' p. 543.

using it while in England led to its cultivation in our gardens. It has long been a favourite salad-plant in France under the names of *mâche, doucette,* and *salade de chanoine.* We may learn much from our Continental neighbours in their appropriation of all natural productions of this sort to the purpose of contributing variety to their diet." *

Corn Salad would seem to be planted on the Continent in every month of the year, as it is always to be obtained in the vegetable markets of France and Germany. It was doubtless introduced to our gardens from the Continent, as it formed one of the salad herbs of the recluse or hermit in very early times.

The Teasel Family.—Nat. order, Dipsaceæ, from δίψα, thirst, whence Διψάκος, the Greek word for the genus which is distinguished as follows:—Herbs, with opposite leaves, and no stipules. Flowers collected into compact heads or spikes, surrounded by a common involucre, with scales or hairs on the receptacle between the florets, as in composites. Calyx combined with the ovary, the teeth often terminating in stiff points or bristles. Corolla monopetalous, four- or five-lobed, often oblique. Stamens, four, inserted in the tube; the anthers are not united as in *Composites.* Fruit small, dry and indehiscent, crowned by the border of the calyx, often enclosed in the involucel, which assumes the form of an outer coating. Seed, solitary, pendulous. The order is a very limited one, of which we have only two native genera, namely:—

1. Dipsacus.—Scales of the conical receptacle between the florets, prickly.—*Teasel.*
2. Scabiosa.—Scales of the receptacles not prickly or replaced by hairs.—*Scabious.*

1. Of the Teasel three forms are sometimes described, as under:—

A. *Leaves connate.*

2. *Dipsacus sylvestris.*—Common Hedge Teasel. A stout herbaceous hedge-plant; the scales of the receptacle straight and pointed.

*Fullonum.*—Fuller's Teasel. Much like one, but the scales of the involucre are reflexed strongly, and prickly.

B. *Leaves pinnatifid.*

3. *Dipsacus pilosus.*—Hairy Teazel. Much smaller than 1 and 2, with white flowers and hispid scales to the receptacle.

1. The Common Teasel is a well-known handsome denizen of our hedge-rows almost everywhere. Bentham describes its

* 'English Botany,' p. 240.

habitats as follows:—"On road-sides and waste places in central and southern Europe and across Russian Asia, not extending northward beyond Germany. Common in the southern counties in England and in Ireland, more rare in the north, and in Scotland probably only as an introduced plant. This form is well known to every one in England, as there are few amongst us who have not used the compounded heads of ripened flowers as a brush for the hair; the side-prickles of the involucres, though not being capable of teasing like the next form, has a great charm as a hair-brush to young children.

2. *The Fuller's Teasel* is only known as an object of cultivation. It is grown in stiff soils in Gloucester, Yorkshire, and near broad-cloth manufactories as the heads are grown for raising the fine nap on these textures, and which though lots of attempts have been made, have not yet been entirely superseded by the wire-made machines invented to take their place, this is done by the reflexed hooks. It should be mentioned that both the forms so far described are remarkable for having some bold connate leaves, in which the pairs of leaves which are situate on opposite sides of the stem are united for half their length by their sides, in such a manner as to form a receptacle for water. There is then no wonder that our forefathers should from this infer that the water so stored possessed wonderful properties. These water receptacles were termed Venus-baths, and hence became celebrated as cosmetics, whilst for sore eyes it was extolled beyond measure. The truth is, that soft water whether gathered in these receptacles of the teasel or taken from a well of pure water—perhaps a consecrated spring—would in most ophthalmic cases be of benefit, as in no complaints is the "water cure" more likely to be beneficial as even washing is of immense use in most cases.

Mrs. Lankester gossips so pleasantly on these plants that to quote her words:

"Cultivated Teasel.

"French, *Cardère cultivée*. German, *Weber Karde*.

"The Teasel, in its wild form, would appear to be about the most unlikely plant to render any service to man, yet the water which collects in the cup-like hollows of the leaves was at one time considered to be a remedy for bad eyesight. It was called by some of the old herbalists Venus's-bath. The teasel is an instance of the adaptation of a natural production to the artificial wants of man, in its original state. The object for which it is employed cannot be effected by the most carefully-contrived machinery; and after numerous inventions and attempts to supersede it, none have succeeded so well as the natural teasel. The purpose for which it is so valuable is the

dressing of woollen cloth, the nap of which is raised by means of the prickly heads of the plant, the bracts of which are furnished with little recurved instead of straight prickles. Probably the common Teasel with the straight prickles was at first used, and accidentally a variety with recurved spines was found to answer the purpose better, and it was carefully preserved and cultivated. The fine hooked heads of the Teasel are found to raise the fibres of the cloth better than any contrivance that has been attempted. The fine hooks of the plant easily break and give way in any obstruction without tearing or injuring the cloth; any artificial contrivance of wire or bristles is stronger and less elastic, and more liable to injure the fabric. At one time wire machines were very generally used, and the Teasel plant ceased to be cultivated in Britain; they were, however, found not to succeed, and were soon thrown aside in favour of the original Teasel. The heads of the Teasel were at first set into a frame, so as to form a comb or brush with which to manipulate; but an improvement has been adopted by means of fixing the head to a cylinder, which revolves and performs the necessary operation more rapidly and perfectly. Large quantities of Teasels are grown in Somersetshire and near Bristol, for the purpose of the cloth manufacturer. An acre will produce about 160 bushels, worth about a shilling each. The use of the Teasel in the manufacture of cloth seems to have been introduced by some foreign artisans who settled in this country. Without this plant our cloth manufactory could hardly have made any progress. It has been cultivated for this purpose ever since the reign of Richard I, and since the time of Edward III, has been a regular article of consumption in cloth manufacturing districts. It is a singular instance of the failure of mechanical invention and progress of intelligence to supersede an ancient and apparently rude contrivance. The growth and cultivation of the Teasel demands constant attention and labour throughout the year. The heads are cut from the plants with a knife peculiarly formed, and the hands protected with gloves. They are very carefully dried, and great trouble is taken to prevent their being wetted by a shower after being cut. The large heads which ripen first are the most valuable, and are called kings; these are tied up and dried separately. The next crop consists of middlings, which are smaller and are also called princes; these are best adapted for the dressing of fine and delicate cloths. So great is the trouble and risk involved in the cultivation of Teasels, that it is seldom undertaken by any but labourers and small farmers. It is always regarded as a casualty crop, the market price varying from £4 to £22 per pack; a pack contains about 9000 of the largest heads, or

16,000 of the smallest. Dr. Prior tells us that the name Teasel really signifies *to tease*, and is applied metaphorically to the scratching or teasing of cloth. These two teasels are now only viewed as varieties, a conclusion in which we entirely concur."

3. *The Hairy Teasel.*—We recollect as an interesting plant which we have gathered in Lady Cromie's woods at Birdlip, Gloucestershire, and also on the Teme banks in Herefordshire. It is local in the southern and central counties of England, but is not found in Ireland nor Scotland. It is much smaller in all its parts than the preceding; its leaves are not connate nor is it armed with prickles, but instead of these the stems are more or less armed with bristly hairs.

We have then in these three plants, subjects that at one time were said to possess great medicinal virtues, these, however, are not even hinted at in the present day. Still the Fuller's Teasel is an interesting variety of great mechanical use, while all three are of the greatest interest for their structural beauty.

The Scabious is distinguished as under:

1. *Scabiosa succisa. Devil's Bit or Blue Scabious.* Leaves mostly radical and stalked.
2. — *Columbaria.* Small Scabious. Leaves on long petioles ovato-lanceolate.
3. — (*Knautia*) *arvensis.* Field Scabious. Lower leaves deeply notched, upper ones pinnatifid.

1. *The Devil's bit Scabious* has its peculiar name from the bitten off appearance of the rootstock, this portion of the plant which is abrupt at the end as though it had been eaten away at the extremity, is the subject of a peculiar legend. It is said that this plant once possessed so many virtues and especially in its root, that the Devil in despite ate away the end of the root-stock, and Sir J. E. Smith tells us that with so much success, that the plant has possessed no virtue of any kind ever since. Still it may be affirmed that what is left of the rootstock is highly astringent and has still a country repute for diarrhœa, dysentery, and the "stanching of wounds."

The plant grows in moist moorish places on the grips at the bottom of the high pitched lands, the remnant of old arable farming, when it is shown in the pasture and other ill-drained meadows, it is far too common, and where it occurs is an evidence of the want of efficient drainage.

2. *The small Scabious* is of a light lilac colour, it is common to road sides and waste places, but principally so upon Oolitic or cretaceous deposits, as it seemingly requires lime for its growth.

Near us in Dorset is a hill which rises up somewhat abruptly; at each end of this hill there is a road with a band of turf on each side, and here by the road side and not on the hill this plant is abundant. Its rootstock like the preceding is astringent.

3. *The Field Scabious* is essentially a lover of the arable field. It is a conspicuous wild scabious plant, very showy in rustic bouquets. It is usually separated from the Scabious on account of a difference in its flowers, but we incline to view this as quite unnecessary.

Both the genera here treated of may be considered as of great interest to the botanist, but as having now lost their former medicinal repute. They are all full of fine colour and cheery to look upon. Some of the garden examples of the Scabious are not only beautiful but charming for their delicious perfume.

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## FŒTAL DYSTOKIA—ABDOMINAL ASCITES—COMPLICATED.

By A. E. Macgillivray, M.R.C.V.S., Banff.

The case which I am about to relate is, I am confident, so unique that I consider no apology necessary for bringing it under the notice of the profession; for, in so far as I am aware, it is the only case of the kind on record, neither Saint-Cyr nor Fleming making mention of anything exactly similar.

The particulars are as follows:—On arriving at home late on the night of the 28th March last I found a message waiting me to go to a "calving cow" at a small farm some four miles out; but as the messenger left word that, owing to the severe snowstorm then prevailing here, I would not get my horse within a couple of miles of the place, I resolved (per force) to leave the cow till morning. Next morning messenger returned, urging my attendance, as cow was still making impotent attempts to calve.

On my arrival at the farm I found a local empiric stripped and busy at work, doing his utmost to assist "persistent nature!" Two extremities with ropes attached were protruding from the vulva, which I was informed were the hind legs, and five persons were just about to commence pulling at same when I appeared. Finding that they were hind legs, and that the fœtal tail was well down between them, I advised immediate traction. No use, however; for the united efforts of six of us could bring the fœtus no further than the hocks, and there it

stuck. Got other four men to assist, making ten persons in all, and yet failed to bring fœtus farther than hocks. I now thought there must be something uncommonly wrong with fœtus, and endeavoured to get my friend the local empiric to make an exploration per vaginam, in search of what retarded delivery; he had, however, by this time got very much alarmed, and proposed leaving the cow "to herself for other four-and-twenty hours, as he had often seen such cases right themselves!"

I declined agreeing to this extraordinary proposal, and immediately stripped for work. On exploration I found the hind quarters of fœtus *all* within pelvis, with plenty of room, as I could easily slip my hand all round same; but pushing my hand a little further I solved the mystery by finding the abdomen of fœtus immensely distended—very much in excess of what I had ever felt before in similar cases. I lost no time in slitting up the fœtal abdomen with one of Sheather's excellent embryotomy knives; this was not at all difficult to accomplish in the *lumbo-sacral* position, in which fœtus fortunately lay; oceans of fluid immediately escaped, and on renewing traction this fluid came away in strong jets, plentifully deluging those pulling at the ropes; but still the fœtus remained stationary in its former position.

On again exploring I discovered that the whole of the intestines of the fœtus were also greatly distended with fluid, thus rendering absolutely necessary evisceration of the contents of fœtal abdomen. I accomplished this with very little trouble, and then the fœtus was extracted with comparative ease.

Most wonderful to relate, after all this traction, slitting up, and evisceration, the little creature (an eight months' fœtus) was still alive. In this case the thoracic cavity and its contents did not share in the dropsical affection, being all quite normal; this, perhaps, will account for the fœtus being brought forth alive.

The mother was in rather a precarious state for a few days; but with strict attention, plenty of stimulants, and repeated uterine injections of a weak solution of carbolic acid, she came all right.

In all such cases previously reported the position of fœtus has been the (anterior) vertebro-sacral, while in that above related the position was the (posterior) lumbo-sacral. In all such cases the fœtus has been dead prior to or been killed during or before completion of delivery, while here the creature was brought forth alive. The presence of dropsy within the intestines is, I imagine, rather an uncommon complication in such cases.

There are, therefore, four distinctive features which required

to be noted in this instance, namely, (1) the position of the fœtus-lumbo-sacral; (2) the distension of the whole intestinal canal, stomachs and all, with fluid, *and this in addition to* the collection of fluid within abdominal cavity; (3) the absolutely necessary evisceration of nearly all the intestines; and, (4) notwithstanding all these complications, the fœtus being brought forth alive!

## Pathological Contributions.

### CATTLE PLAGUE.

During the month of September and the beginning of October reports of several outbreaks of cattle plague were received from the province of Bukowina, in Austria; but on the 21st of October Austria was reported to be entirely free from this disease.

On the 16th of October an outbreak of cattle plague was reported in the stables of a distiller at Breslau, in Silesia, in the German Empire: strict precautionary measures were at once taken to prevent the spread of the disease.

The Cattle Plague in South Russia.—The Odessa Correspondent of the *Daily News* writes:—The cattle plague in South Russia is again alarmingly on the increase. It is certainly no matter of surprise that this virtually unchecked disease should periodically make extraordinary havoc where the circumstances are more than ordinarily favorable to its propagation. It prevails in almost every village of this Government. From two neighbouring and extensive villages, Festorofka and Jeremejefka, the reports are particularly distressing. The most extraordinary feature of the various reports in connection with the progress of the disease is, that wherever the cattle plague is most virulent, there also the diphtheria among the people is equally widespread and alarming. To say that diphtheria is more or less widespread in South Russia is not in the slightest degree matter of surprise to any Russian. It is as permanently established in these provinces, unfortunately, as the cattle plague itself. But that the progress and virulence of both diseases in the same localities should be coincident is inexplicable. It may, of course, be simply a coincidence. I at least can offer no other hypothesis for the fact. In the city of Odessa, also, the cattle are being decimated. It is satisfactory, however, to turn to the account of a new scheme, just inaugurated, for stamping

out the plague. Formerly it was held obligatory on the owners of cattle dying of the plague to see to the proper burial of the carcases at a given depth; but this regulation, efficient on the face of it, became a dead letter for the want of proper police inspection. Now, however, immense ovens have been constructed within certain radii of the infected districts, and to these crematory centres owners are compelled, under heavy penalties, to bring the carcases of plague-stricken animals as well as the refuse and fodder of the infected stables. As this department of cattle cremation has been specially established, and will be conducted and controlled by special staffs, it is to be hoped that no lack of perseverance will mar its success in arresting a pest which has already nearly ruined half the agriculturists of South Russia. The mortality return of Odessa for the past week includes one death from the Siberian cattle plague.

## PLEURO-PNEUMONIA.

This disease is reported to have appeared among cattle in the Counties of Delaware, Chester, and York, in the State of Pennsylvania.

In the Netherlands, during the four weeks from the 9th September to 6th October, no cases were reported outside the Spœling district, in which seven animals were found to have been affected after post-mortem examination.

During the five weeks ended September 29th, 1883, there were reported in Great Britain 34 outbreaks of pleuro-pneumonia, and 90 cattle attacked. In the corresponding period of 1882, 39 outbreaks and 104 cattle attacked were reported.

## FOOT-AND-MOUTH DISEASE.

There were reported in Great Britain during the five weeks ended September 29th, 1883, 6071 outbreaks of foot-and-mouth disease, the number of animals attacked were 129,036, of which 1075 died.

## SWINE-FEVER.

In the five weeks ended September 29th, 1883, there were reported in Great Britain 347 outbreaks of this disease, 1621 swine were attacked of which 274 died.

## Facts and Observations.

CATTLE POISONED BY EATING YEW.—A herd of valuable bullocks belonging to Mr. Thomas Varnham, farmer, of Appleby, near Ashby-de-la-Zouch, and pastured in Appleby Park, on Wednesday, October 24th, broke through a fence and got into a plantation. They there browsed on some yew trees, the result being that on the following day twelve were dead and others were in a dangerous condition.

TRICHINOSIS IN GERMANY.—A telegram received from Emersleben, a village in the Government district of Magdeburg, states that 266 persons at that place have been attacked by trichinosis. Out of a total of 134 houses, only fifty are free from the disease. Up to the present (October 22nd) over a score of persons have succumbed. Trichinosis has also made its appearance at Aken, a town in the same district, where several fatal cases are reported.

FATALITY FROM EATING DISEASED MEAT.—At the adjourned inquest on the body of Thomas Furlong, one of twenty-eight labourers who, it was alleged, had been poisoned at Rasagarland, Wexford, the rumour that poison had been put into the water that they drank was contradicted; and it was shown that a cow which was suffering from splenic apoplexy had been killed, and the flesh given to the labourers with some beer. The deceased, with several others, was seized with illness, to which he succumbed. Verdict, "Died from eating diseased meat."—*Med. Times and Gazette.*

PURE WATER ON FARMS FOR CATTLE.—A suggestion has been made that Government should insist that holders of land should in every case provide pure water for cattle to drink, and that in no case should sewage-water, drainings from farmyards and other impure sources, be allowed to run into ponds used for drinking purposes for cattle. Some official supervision over the water-supply for the use of cattle on farms, is a sanitary provision which is no doubt much needed, both for the well-being of man and beast. Milk pails are often cleansed with water from these farmyard ponds.—*Med. Times and Gazette.*

STATUE TO THE MEMORY OF THE LATE PROFESSOR DICK.—"Honour to whom honour is due." We learn from the Scotch papers that a statue, the work of Mr. Rhind, sculptor, has just been placed in the Edinburgh Veterinary College in commemoration of the value of the services of the late Professor Dick. It was unveiled with becoming ceremony by the Lord Provost, a distinguished company being present. The likeness is said to be good.

# THE VETERINARIAN, NOVEMBER 1, 1883.

Ne quid falsi dicere audeat, ne quid veri non audeat.—CICERO.

## THE INTERNATIONAL CONGRESS AT BRUSSELS.

ON September the 10th, at the Palais des Académies, Brussels, the congress, to which we have on previous occasions referred, assembled for the discussion of certain subjects intimately connected with the organization of veterinary sanitary police measures, veterinary education, and some of the more important animal plagues which, by their existence among flocks and herds, seriously derange the ordinary course of cattle traffic, owing to the necessity which in consequence arises for restriction on the movement of infected and non-infected animals. The importance of the meeting was fully recognised, and delegates were present from all European states, excepting Russia, Spain, and Portugal, and delegates were also sent to represent the United States of America. It was intended that the inaugural ceremony should be performed by the Minister of the Interior, but his Excellency was prevented from being present, and, in his absence, M. Somerhausen welcomed the delegates and declared the congress formally opened.

A second meeting of the congress took place in the afternoon of the opening day, and the subject of the organization of a veterinary service was considered. The meeting finally arrived at the conclusion that it was the duty of the State to take advantage of the services of veterinarians as far as possible, not only for the purpose of dealing with outbreaks of animal plagues, but also for the efficient inspection of fairs and markets, slaughter-houses and knacker yards. And it was further suggested that veterinary surgeons, under State direction, should have the supervision of insurance societies for stock, and of animals used for breeding.

A discussion on pleuro-pneumonia was carried on during the second day of the meeting; and it was somewhat startling to hear that the question of the spontaneous origin of pleuro-

pneumonia was seriously considered. The English delegates, among others, opposed the idea of pleuro-pneumonia occurring otherwise than as the result of contagion, and the large majority of the members concurred in this view.

Bovine tubercle should have followed in due order, for the purpose of the determination of certain important points in connection with the origin and propagation of the disease, but none of these presented anything beyond a mere cursory notice at the end of the sitting. The pamphlet on the subject which was submitted to the congress by the Commissioners, M. Lydtin, Van Hertzen, and Dr. Fleming, Principal Veterinary Surgeon to the Forces, contained a complete history of the affection, and manifested very elaborate research on the questions proposed to them, viz. 1. What influence has heredity on the propagation of tubercle of the ox? 2. What influence has contagion on the extension of the disease? 3. What measures should be adopted to prevent the ill effects of the use of the meat and milk of tuberculous animals? On these several points the Commissioners state their views. They are of opinion, from the evidence which they advance, that tubercle can be propagated by heredity and by contagion. Cases are quoted which tend to prove that the meat and milk of tuberculosis can produce the disease in other animals when ingested; and also that inoculation with the matter of tubercle induces the disease.

Holding very decided views as to the ready transmissibility of tubercle, it is to be expected that the Commissioners would advocate very stringent measures to prevent the use, for human food, of the products of tainted animals; and we find that the regulations which they propose are extremely severe, including slaughter of diseased and suspected animals, condemnation of the flesh and milk, and long supervision of places where the disease has located by the police. It may perhaps be suggested that the conclusions of the International Congress, or of the delegates individually, will have no particular influence on such regulations; but we may reply that Government regulations are in a large measure determined by public opinion, and that such meetings as those which have been held during the last twenty years at Hamburgh, Vienna, Zurich, and Brussels, have had an important educational influence; and it is not unreasonable to

expect that the views of a deliberative assembly, composed of the members of the veterinary professions from all parts of the world, would command attention.

The serious mistake which appears to us to have been made at each assembling of the congress is the attempt to do an impossible amount of work. Any one of the subjects proposed for discussion would have been quite sufficient to occupy the attention of the delegates for the whole period of the meeting.

## THE COMING CONVERSAZIONE.

We learn with much satisfaction that a social and scientific conversazione is about to be held under the auspices of the Central Veterinary Medical Society. The meeting will probably not take place until the 12th or 13th of December, as there are many preliminary arrangements to be made, for which purpose an influential committee has been formed. No effort will be spared to make the gathering worthy of the profession, and to give it an importance in full accord with our now legalised position among the scientific bodies of the day. Doubtless the leading members of the profession—both town and country—will attend in large numbers to give the hand of brotherhood to our elder sister in medicine and those distinguished scientists who will be gathered together in mutual friendship and goodwill. In our next issue we hope to give full particulars of the progress which has been made, and to lay before our readers the programme of the proceedings which has been agreed upon by the committee.

# Review.

Quid sit pulchrum, quid turpe, quid utile, quid non.—Hor.

### *The Microscope and Accessory Apparatus.*

A very useful pamphlet on the microscope and accessory apparatus has recently been published by Mr. Swift, optician, of Tottenham Court Road. The object of the work is to instruct the tyro in the mode of using the microscope and all the appliances which belong to it, and with this view all the forms of

apparatus which are employed by microscopists in their investigations are depicted in actual use, and in addition a short description of the necessary manipulations is given, so that the student cannot fail to discover at once how to employ the instruments which he possesses in the most effective manner. One great merit of the directions is their remarkable conciseness, nothing is said but what is really necessary for the purpose of indicating the arrangements which are required.

## Extracts from British and Foreign Journals.

### THE ALLEGED CONVEYANCE OF ZYMOTIC DISEASE BY MILK.

At the Congress of the Social Science Association, held at Huddersfield, Mr. F. Vacher, Dr. Britton, of Halifax, and Mr. Ernest Hart, read papers on the "Spread of Disease through the medium of Milk." After a long discussion, the section resolved unanimously to ask the Council of the Association to consider the desirability of recommending to the Government the adoption of further measures for preventing the spread of zymotic diseases through the milk-supply of towns. Many authorities on epidemiological problems are beginning to question whether, in many cases, epidemics have not been traced to the milk-supply without a sufficiently rigid scientific demonstration. It is almost impossible to believe that in the fifty-three epidemics of typhoid said by Mr. Hart to have been traced to impure milk the evidence has amounted to absolute demonstration. Even in the recent Camden Town epidemic, in which there is a much larger and more definite body of evidence pointing to milk-infection than in the case of many other epidemics put down to a similar cause, the demonstration by no means amounts to certainty. But we must defer comments on this particular case till next week. The simple fact is, it has become the fashion to condemn the dairy in default of other discoverable cause. This is a point which needs guarding against.—*Med. Times and Gazette.*

## PECULIARITIES IN THE FLAVOUR OF MILK.

Of two cows, running together in the same pasture, one may give sweet milk and the other bitter. In most cases of this kind, says an American contemporary, when careful examination is made, it will be found that there is something in the pasture which one animal will eat that another will not, that makes the bitterness; it may be rag-weed, May-weed, Johnswort, or daisy, or something similar. The milk of one cow in a dairy became peculiar in flavour, when the milk of all the rest was the same as usual, and this in a pasture where nothing but grass and clover grew. By close watching it was found, after a while, that the strange flavour came from a habit one cow had acquired of reaching over a fence and cropping weeds which grew along the fence on the other side, and which none of the other cows would touch. The same food, however, does not always affect the same animal or the same person alike, a circumstance which results from a constitutional idiosyncrasy. Just what makes the difference in the flavour of the milk of certain cows cannot, therefore, always be told with certainty; but generally a watchful inspection of all that relates to the animals giving the peculiar milk will reveal the cause. Bitterness oftener occurs in the winter than in the summer, and is more difficult to trace to its cause. It is then frequently owing partly to the peculiar state of health, and partly to the food, the same food not producing the same flavour at other times. When only one or two out of the number of cows have their milk affected the cause can generally be ascertained by changing the food an item at a time till the cause is removed; for instance, if maize-meal is used, change it for bran or middlings, and if, after waiting a sufficient time for a change of flavour, none occurs, change the hay for fodder, straw, or some other kind of hay, and again wait results, and so on till a complete change is effected. By this course the cause of bad flavour of any kind will be pretty sure to be discovered. If after a complete change in food has been effected no alteration in the milk can be seen, it will be pretty safe to conclude that the cow's health is at fault and needs looking after.—*Land and Water.*

## CATTLE DISEASES.

THE following extract on Cattle Diseases is from the report of the Chief Constable of Cumberland and Westmoreland, which was submitted to the Quarter Sessions at Carlisle and Kendal. The system carried out in Cumberland and Westmoreland to prevent the introduction and spread of the disease is fully explained therein.

CHIEF CONSTABLE'S OFFICE, CARLISLE, 17*th Oct.*, 1883.

To Her Majesty's Secretary of State, and the Justices of the Peace for the Counties of Cumberland and Westmoreland.

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With regard to the duties connected with cattle diseases during the last year, three cases of foot-and-mouth disease were certified to exist—one at Greystoke in February, one at Kirkbythore in April, and one at Oulton, Wigton, in August. In the cases at Greystoke and Wigton the disease was clearly traced to Irish cattle bought at markets at Carlisle. These cattle had been imported from Ireland immediately preceding their sale at Carlisle, and soon after symptoms of the disease became visible. At that time there was no disease in these counties. Considering the short period which elapsed between the embarkation of these cattle and the outbreaks of disease the belief is that they must have had the disease in its latent stages previously to leaving Ireland. In a similar manner the disease was recently introduced into Scotland, Northumberland, and other districts, by Irish cattle coming direct from Ireland. On previous occasions the disease was also brought into this county by cattle coming direct from Ireland. Admitting animals from Ireland under declaration and license was found to be unsatisfactory, and was attended with great difficulty and risk, inasmuch as it was impossible to procure trustworthy evidence in Ireland to prove that the animals described in the declaration were the same animals that were subsequently imported into this county under the license, the good faith which we were led to expect would be acted upon was broken, and it was found that the license gave insufficient security against the movement of animals from diseased districts. It was consequently determined that the only effectual means to prevent the continued importation of the disease from Ireland was the orders of the Local Authorities absolutely prohibiting animals from Ireland being moved into Cumberland or Westmoreland during the prevalence of the disease in Ireland. The case of Mr. Bryson, the Irish cattle dealer, who on the 28th ult. caused twenty-four Irish cattle to be moved in the night-time from Stagshaw Bank Fair, Northumberland, to Low Row, with the object of bringing them on by

train to Carlisle, and selling them there at an auction mart on the following day, for which offence he was on last Wednesday fined £120 by the Brampton magistrates, will show that even under the order of absolute prohibition constant watching and vigilance is necessary to prevent Irish dealers from acting in defiance of the regulations which you have made. In my reports to the Easter and Midsummer Sessions I fully explained the measures which were carried out by me at Greystoke and Kirkbythorpe, to endeavour to prevent the disease spreading from the places where it broke out. In the case of Mr. Twentyman, of Oulton Grange, Wigton, in August last, all the animals in the field where the disease appeared were bought by Mr. Hope of Wigton, in order that the disease should be promptly stamped out The money required to recoup Mr. Hope has been fully subscribed by the magistrates, farmers, and others in the Wigton district. An infected circle of half a mile in circumference was, under the Order of Council, at once formed round the infected place. A cordon of police was immediately thrown round it for the purpose of doing everything that was necessary to thoroughly isolate the infected place, and to prevent animals being moved out of, into, or within the infected circle, excepting in the manner directed by the regulations. All communication with the diseased place was regulated so as to have the necessary precautions to avoid the risk of spreading the disease carefully observed. The field, manure, &c., were disinfected. The police remained on duty night and day under the supervision of Mr. Superintendent Brown and Sergeant Nicholson, for twenty-eight days after the cessation of the disease. They had all the regulations and Orders of Council carried out, and it is a great satisfaction to have to report that no further case of disease has since appeared in either county. I communicated the regulations to the managers of the nine railway companies whose trains run into these counties, and strongly urged them to give the necessary instructions to their station-masters to see that no animals were brought in otherwise than in the manner authorised; and I have received valuable assistance from these gentlemen. Similar communications were sent to the harbour authorities of the ports of debarkation from which animals come here. I feel bound to state that the farmers and others interested have, with but few exceptions, generally assisted in having the regulations faithfully and honestly enforced, because they saw that the same were really for their benefit in protecting their cattle from the disease.

Constables have been placed at all points of communication along the borders of the counties to prevent the illegal removal of animals from infected districts.

2904 licenses were granted by the superintendents and other officers for the removal of 127,279 animals into Cumberland, and 2557 licenses were granted for the removal of 78,603 animals into Westmoreland. In no instance were any of these licenses

granted until careful inquiries by the superintendents had been made of the police of the districts where the cattle sought to be moved were for the purpose of ascertaining whether all your regulations could be complied with in every particular. In many cases officers had to go from these counties to investigate the particulars before licenses were granted, as the information required could not be otherwise procured. These inquiries entailed considerable expense and a great deal of travelling.

The modifications which were made regarding the removal of sheep from Scotland have been of great benefit to the farmers and others requiring stock. I arranged for officers to attend the several sheep fairs and markets in Scotland, for the purpose of granting the necessary licenses on the spot, after due inquiries, instead of requiring those who wanted licenses to either write or come to Carlisle for them, which would have involved loss of time and the cost of the keep of the sheep in Scotland for two or three days after purchase. 805 licenses were granted for the removal of 120,527 sheep into Cumberland, and 82 licenses for the removal of 10,522 sheep into Westmoreland. These licenses are exclusive of those referred to in the preceding paragraph.

A number of officers attended on duty at the various fairs, markets, and auction marts, to examine with the veterinary inspectors the animals exhibited for sale, and to see that the regulations as to licenses, &c., were complied with.

Twenty-one officers and constables were engaged in Cumberland in carrying out the Order of the Council as to the cleansing, disinfection, &c., of railway vehicles used in the transit of animals. 19,221 inspections were made by the police at the railway stations and other places; 3402 horse-boxes, 38,110 trucks, 244 vans, 2249 gangways, 47,433 pens, 774 landing places, 189 yards, 358 sidings, and 312 moveable cages were examined.

In Westmoreland seven officers and constables were engaged on similar duty. They made 4828 inspections; 2703 horse-boxes, 16,801 trucks, 1347 vans, 16,697 pens, 781 landing places, and 296 ferry-boats were examined. The weekly reports, giving the details of these inspections, have been deposited with the Clerk of the Peace for the information of the local authority and the Privy Council. Mr. Bell, the Veterinary Inspector, also the superintendents, inspectors, sergeants, and constables engaged in this work have acted with marked zeal, energy, and fidelity.

The total expenditure, inclusive of the veterinary inspector's charges for attending fairs, markets, and making necessary examinations and reports, also the cost of the labour in disinfection and the costs of disinfectants, with all other expenses in connection with the granting of licenses and other matters was, in Cumberland, £1276 14s. 1d., and in Westmoreland £752 16s. 2d.

Considering what has been recently said in many districts as to the impossibility to prevent the spread of the disease by

the application of the powers vested in local authorities by the existing law and Orders of the Privy Council, I don't think it is out of place to repeat the fact that by the records in the office of the Clerk of the Peace it will be seen that in the seven years previously to 1878 the losses caused by the disease in Cumberland was £219,680, and in Westmoreland £81,721. This was the state of things without efficient restrictions. In the last six years six cases of disease occurred in Cumberland and one in Westmoreland, but by the thorough and efficient fufilment of the regulations of the magistrates of the two counties the disease was prevented from spreading beyond the farm or premises where it broke out in these seven cases.

I have the honour to be, gentlemen,

Your most obedient servant,

J. DUNNE,

Chief Constable of Cumberland and Westmoreland.

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## ROYAL COLLEGE OF VETERINARY SURGEONS.

### QUARTERLY MEETING OF COUNCIL HELD OCTOBER 17TH, 1883.

G. FLEMING, Esq., President, in the Chair.

*Members present.*—Sir Frederick Fitzwygram, Professor Pritchard, Messrs. B. Cartledge, J. R. Cox, J. Harpley, W. B. Walters, H. L. Simpson, F. W. Wragg, E. C. Dray, W. Whittle, A. H. Santy, W. Woods, H. J. Cartwright, R. Reynolds, T. Greaves, P. Taylor, F. Blakeway, and the Secretary.

The notice was read convening the meeting.

The minutes of the previous meeting were taken as read and confirmed.

Telegrams and letters were read from Professors Robertson, Simonds, and Walley, and Messrs. Perrins and Batt, regretting their inability to attend the meeting.

Presentations to the library were announced from Professor Robertson, Dr. Nosotti, and Dr. Harms, and the thanks of the Council were accorded to the donors.

*Correspondence.*

A letter was read from Professor Walley, submitting questions with regard to the matriculation scheme.

*The President* said that questions with regard to the matriculation examination had better be left to the College of Preceptors to decide, and he would submit the questions to them. To this the Council consented.

A letter was read from Mr. Charles Hunting, of South Hetton, offering to give £50 to the College Fund and Field Bequest if 19 other members would give an equal sum; or, if

this could not be done, he would be glad to give £100 if nine others would cover it with equal amounts.

A letter was read from Mr. Kingsett, of Oswestry, asking whether anyone possessing the diploma of the Ontario Veterinary College could practise as a veterinary surgeon in England.

A letter was read from Mr. Bretherton, applying for registration as a foreign practitioner, and enclosing various diplomas and credentials from America.

On the motion of *Mr. Reynolds*, seconded by *Mr. Taylor*. these communications were referred to the Registration Committee.

A letter was read from the Secretary of the Central Veterinary Medical Society, thanking the Council for the use of the Board Room, and asking for a continuance of the favour.

The Council acceded to the request as heretofore.

A letter was read from Mr. Finlay Dun as to examinations.

*Mr. Taylor* proposed that the letter be laid on the table as read.

*Mr. Blakeway* seconded the proposal, which was agreed to.

A letter from Mr. Stephen Cook, calling attention to the chemistry examinations, was also ordered to be laid on the table.

Mr. J. H. B. Hallen having applied for registration as the holder of the Highland and Agricultural Society's certificate, and certified by *Professor Walley*, it was resolved that he be registered as a member of the Royal College of Veterinary Surgeons.

*Examinations.*

The report of the Court of Examiners was read.

*Registration Committee.*

The report of this Committee having been read, it was resolved that the cases of James Yates and G. H. Pickburn, on which additional evidence had been received, be referred back to the Registration Committee.

It was also resolved, on the motion of *Mr. Whittle*, seconded by *Mr. Taylor*, that Messrs. Doris, Drew, and Barrowcliffe, in accordance with the recommendation of the Registration Committee and the Privy Council, be registered as exisiting practitioners.

*Finance.*

The report of the Finance Committee was received and adopted, and the Treasurer was authorised to draw the necessary cheques.

*Mr. Greaves* brought forward the following motion, of which he had given notice:—"That if a student passes in any of the oral subjects with 'Good' or 'Very good' at any of the Examinations, he shall not be again examined in the subject he has thus passed; but, if rejected at his practical, his further examination shall not be proceeded with, and he shall be required

when he presents himself again for examination, to furnish the examiners with a certificate from a veterinary surgeon showing that he has devoted the interim in obtaining the knowledge he lacked." He said his motive was to render the method of examination of the veterinary student more efficient, and, as a result, to raise the standard of the profession. The subject had been brought before the Council recently by Professor Walley, and after considerable discussion it was lost by one vote. He had incorporated in his motion the suggestions made by Mr. Cartledge, Mr. Cox, and Sir Frederick Fitzwygram, and he believed that some such method was absolutely necessary in order to make the profession what it really should be. It was the province of the Council to keep a strict supervision over the interests of the profession. They all knew it as a fact that numbers of students passed every year, but who, when they went into practice, proved themselves wholly incompetent. No one regretted this more than he did. They could never hope to make all students equally clever, but the object of the motion was to give them a greater degree of proficiency, and at the same time to give the examiners a better chance of assuring themselves of the possession by the students, or of enforcing upon them, of those sanitary and beneficial principles which they did not possess at the present time. A few years since the Council adopted the plan of the examiners examining the student two or three times, instead of giving him one examination only. This was thought at the time to be a step in the right direction, and he believed it had worked most satisfactorily. All students alike were not endowed with great mental capacities. He thought that the great mass of intricate, scientific, and profound matter which such students had to master had the tendency to overcrowd and overload their brains, and so to make their studies irksome and distasteful. He thought that while they were neither doing an injustice to the student who had the advantages of a good memory and good ability, nor lessening in the slighest degree the number or the profundity of any subjects which a student must learn, they would at the same time give a supreme relief to the ordinary student by teaching him certain specified subjects one session and examining him upon them, and then the next session other specified subjects and examining him upon them, and so on to the third session, providing that at each or either of those examinations the subject which he had passed with "Good" or "Very good" should be considered satisfactory, and that he should not be called upon again to be examined upon those subjects. The advantage of this must be obvious to every thinking man. The whole attention of the student could be concentrated upon these special subjects. He could learn them more thoroughly. He was then examined, and if he got "Good" or "Very good" he was at once relieved of them, and his mind being free he could concentrate all his energies on the study of the other special subjects the next session.

He would leave the matter to the wisdom of the Council, simply observing that they could want no more than to find that a student was fully proficient in the subjects upon which he was examined. As to the practical examination, if the student was found fully efficient, they neither asked nor desired to know when or how he had acquired his knowledge; but, on the other hand, if the Examiners were clearly of opinion that he was deficient in practical knowledge, he would propose that his further examination should not be proceeded with. In the first place, it was understood that he could not pass for his diploma if he failed in his practical, and therefore it would be useless for him to go through the oral examination. In the second place, it would be incurring an unnecessary expense to allow him to be further examined when already rejected. It might be said that the rules of the Council would have to be altered if the motion was carried; but he believed that it was of so much importance that that point should not be taken into consideration.

*Mr. Whittle* seconded the motion.

*Mr. Blakeway* said he was in hopes that this matter was already settled. It was really bringing forward again the motion of Professor Walley, which was negatived at a previous meeting. He regretted that it had been brought forward, inasmuch as the schools would begin to think they were always interfering with the examinations. As to the suggestion that if a student failed in his practical examinations he should not be further examined, he (Mr. Blakeway) doubted whether they would be legally justified in adopting that course. The student having paid his fee was entitled to all the examinations that he went up for.

*Mr. Woods* said the motion of Mr. Greaves was opposed to the real welfare of the profession, and that a student should be allowed to enter into the profession having satisfied the examiners upon prescribed subjects one by one was, to his mind, an innovation of the greatest magnitude, and fraught with the gravest consequences. If the profession was to progress they must make the examinations more difficult, and if a student had not the capacity to learn the three subjects necessary to pass his first examination all at once, it was better for the general welfare of the profession, and most likely for his own, that he never entered it. On the other hand, if a student having passed in any one subject with "good" or "very good" at one examination was likely to fail in the same subjects a few months' afterwards, it showed that he had either very small mental capacity, or that his passage was a matter of good luck; in either of which cases he had better undergo another examination. He moved as an amendment, "That in the final examination the oral precede the practical, and that students failing in the oral be not allowed to pass on to the practical, but that a student satisfying his examiners in the oral, but being rejected in the practical, need not again present himself for the oral, but before presenting himself again for the practical he shall give the examiners some

satisfactory proof of having passed the interval with a veterinary surgeon." That was something like the motion he proposed twelve or eighteen months ago.

The *President* said that could not be accepted as an amendment because it altered a bye-law, and must be suspended for three months.

*Mr. Taylor* opposed Mr. Greaves' motion. He could not see why they should always be called upon to alter the bye-laws, thereby giving necessary trouble to the Council and unnecessary excitement to the examiners.

*Mr. Harpley* also opposed the motion. He said they had lately made some alterations which had been adopted by the teaching schools, and he knew that the schools were very desirous that the Council should now let them alone for a short time. These small changes in the present examinations would work very badly, and no one would be satisfied, not even the students themselves.

Both the motion and the amendment were then withdrawn.

The *President* said he quite agreed as to the desirability of adhering for a short time longer, at any rate, to their present examinations. The first part of the motion Mr. Greaves had brought forward was very objectionable, because it allowed men of small brain-capacity to pass their examinations. He thought the subjects had been so allotted in the existing scheme that a man of fair education and ordinary capacity was able to pass in them, and any retrograde step was undesirable. He gave Mr. Greaves every credit for the good intention of improving the education of the profession, but he certainly thought that the motion which he had brought forward would be a retrograde movement. With regard to stopping the examination of a candidate at any part of his examination, he did not think the examiners would undertake that grave responsibility. A candidate had to be rejected by the whole Board, and therefore if he was rejected in the early part of his examination the other members of the Board were not able to give an opinion as to his fitness or unfitness, and such a plan would not work; it would be very unfair to the candidate, and could not be legally carried out.

### *The Supplemental Charter.*

The *President* said it was his pleasure to report that the Supplemental Charter had been granted to the college. Certain privileges were sought by the charter which were necessary to the effective working of the Royal College. One was power to enforce a period of pupilage, another was to increase the examination fees, another to regulate the age of candidates entering the profession, and others related to the election of the Council, of the President, and Registrar. The question of pupilage being opposed by the Corporations of the City of Edinburgh, of Glasgow, and of the Highland and Agricultural Society, had been refused

by the Privy Council, but an increase of three guineas in the examination fees had been sanctioned. He believed that if the Council now framed the bye-laws in accordance with the charters they had obtained they would be in a good working state.

*The Field Bequest and the Royal College Building Fund.*

The *Secretary* reported that the amount at present received in response to the recent appeal to the profession was only £294 3s. 0d.

The investigation of the plans and particulars of the proposed site in Brunswick Square for the College Buildings was left to the House Committee to decide upon, with instructions to report the steps they had taken upon the same to the next meeting of Council.

*Mr. Blakeway* said, at the last meeting of the Midland Counties Association the matter of the Building Fund of the College was brought before them, and he was authorised as treasurer to hand a cheque to the President for fifty guineas, and to say also that should other societies come forward in a like liberal spirit, and funds were still lacking, they might be tempted to do a little more. If it had not been for the strong opposition of a member of that Council the cheque would have been for 100 guineas, instead of fifty. He was rather surprised at the opposition, coming as it did from a gentleman who was only an honorary member of the Association, and who had not contributed one farthing to its funds.

*Mr. Greaves* said he believed Mr. Blakeway had authority to say that if the Council required the sum before the time expired the Midland Counties would give another fifty guineas.

*The President* said, there was a matter which he had been asked to bring before the Council, and he had written to Prof. Brown requesting him to be present that he might assist in explaining to the profession the action of the Privy Council, with regard to an order it had recently issued having reference to existing practitioners. Since the time of the cattle plague the Privy Council had only sanctioned certain qualified members of the profession to act as inspectors under a local authority. Quite recently it had removed that restriction, and now the local authorities could employ any existing practitioner who was entered in the register. He was quite unable to understand this action. The effect of registration did not make one of these men any more qualified than he was before. He had undergone no examination, he had been submitted to no test as to his fitness to practice, he had only been allowed to register himself in order to escape the penal clause of the Act of Parliament. He was quite unable to understand why these men who, before the passing of the Act of Parliament, were not deemed to be competent to act as inspectors, were now, after the passing of the Act, deemed to be competent; and for that reason he had asked Prof. Brown to be present to endeavour to explain to the profession

the action of the Privy Council with regard to these men. Prof. Brown not being present, the question must be deferred to the next Council meeting.

A memorial from Scotland, having reference to the election of members of Council, was referred to the Parliamentary Committee.

*The Belgian International Veterinary Congress.*

*The President* reported that he had, in accordance with the wishes of the Council, attended the International Veterinary Congress at Brussels. There were over 300 delegates and representatives present, and the subjects discussed were of great international importance, especially with reference to dealing with epizöotic diseases. There was also a question raised with regard to veterinary education, and the unanimous feeling was that all veterinary schools should be under Government inspection and maintenance. The other general questions discussed and the results were alluded to. The next Congress was to be held in France within five years.

The obituary notice was read.

The following gentlemen were elected as honorary Foreign Associates: Professors Bagge, Locusteano, and Berdez, and Messieurs Siegen and Hardy, the Secretary being empowered to issue the usual Honorary Fellowship Diploma.

A vote of thanks to the President brought the proceedings to a close.

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## CENTRAL VETERINARY MEDICAL SOCIETY.

At the annual meeting, held on October 4th, Professor Pritchard was unanimously elected President, and Dr. Fleming, Professor Axe, Messrs. J. Woodger, and C. Sheather were chosen as Vice-Presidents for the session.

Preceding the annual dinner, on the same day, an ordinary meeting was held, and was well attended by the Fellows, as well as by several members of the Southern Counties Veterinary Medical Association.

After the chair had been taken by Mr. J. Woodger, Mr. W. Hunting read the following essay on "Some Diseases of the Testes and their Appendages."

Mr. Chairman and Gentlemen,—I have an opinion that there are two kinds of papers which may with equal advantage be brought before our veterinary medical societies; one, in which the author is able to teach us something new or to correct our old errors; the other, in which he does neither, but attempts to extract from each individual all the knowledge of the subject he possesses, whether acquired by observation, re-

search, or reading, and thus make each member enlighten the whole. In other words, I hold that the discussion on a paper is likely to be more valuable than the paper.

Some of you may object that this is something akin to asking a man to dinner and requiring him to bring his own provisions. Well, it is rather; but you must remember that to these mental feasts a large contribution is always made by the hearers of the paper; and let me ask, Is that part of the entertainment not generally the most suggestive and most practical?

The subject I have chosen for your consideration is one about which I know little, and I find our literature is not very rich in information. It is one which must come more under the notice of the country than the town practitioner, and for this reason I chose it, hoping to meet here a large number of those most experienced in such cases.

The diseases of the testes and their appendages, with the operations performed on those parts, is far too wide a subject for a single paper. I have selected three conditions, more or less connected with each other—specific disease of the testes, scirrhous cord, and scrotal fistula.

*Specific diseases of testes.*—As far as I know there are only three definite diseases of the testes in the lower animals—simple inflammation of the gland, cartilaginous degeneration, and tubercular disease.

*Simple inflammation* I have never seen. There is in one volume of the *Veterinary Review* an extract from a French journal narrating a case of chronic orchitis, in which the gland was successfully removed. The only interest of the case resided in two points—its weight and size, and the fact that it was not adherent to the scrotum.

*Cartilaginous degeneration* I have met with once in a black horse. Only one testicle was affected, which was slightly increased in size, and was adherent to the scrotum at its lower part. The disease had not affected the cord, and castration was followed by no bad consequences.

*Tubercular disease* I have not seen; but I mention it here, as it was referred to in an article contributed to the *Veterinary Journal* in December, 1878, by Mr. McGillivray, of Banff. That gentleman (whose writings have only one fault—that we do not get enough of them) says that scirrhous cord is more common in oxen than in horses, and that tubercular affections of the testes are not uncommon in the bovine race.

A question of practical interest is, I think, Have these diseases any connection with scirrhous cord? I am inclined to think not. My own little experience does not include any disease spreading upwards to the cord from the testicle, nor have I been able to trace scirrhus of the cord in an animal known to have suffered from previous disease of the gland.

Has adhesion of the testicle to the scrotum any effect in predisposing to scirrhus? I trace none, but my experience of the

condition is too slight to generalise on. I should almost expect where adhesions have to be broken down that fresh adhesion would be liable to take place, and that scirrhus would often follow adhesion of the testicle to the scrotum. I do not think it is so.

Why is it that scirrhus is more common in oxen? Is this due to the different manner of castration, or is it determined by any tubercular diathesis?

*Scirrhous cord.*—The subject was a grey hunter, which had been castrated in Ireland about two or three months previously. His owner had only had him about one month, during which time he had hunted him about once a week. Each time the horse started stiff behind, but soon went fairly well. The day after hunting he was lame and stiff, requiring some days' rest before being fit even for exercise. When I saw him he had had some days' rest, was stiff when moved, especially upon the near hind leg, and was in poor condition. The scrotum and sheath were swollen, and the exudation extended into surrounding subcutaneous tissue. The enlarged mass forming the extremity of the cord felt like a large testicle drawn close up to the ring. The animal was cast, when it was seen that the two incisions made at the time of castration were not firmly cicatrised; the one on the near side, in fact, was kept open by a small fistula. The incision through the swollen scrotum to reach the tumour was about two inches deep. It passed through tissues not only swollen but hardened. The enlarged end of the cord was firmly adherent to the scrotum throughout, and large blood-vessels passed from one to the other. Dissecting out the tumour was attended by considerable hæmorrhage, which I did not attempt to check until I had divided all adhesions, my idea being that tying arteries in the early stages would be useless, as probably the same vessel or anastomosing branches would be again divided by the next cut. On reaching the cord above the scirrhus it was found much enlarged, nearly the circumference of one's wrist, but it was not hardened. On this part I placed an ordinary wooden clam with some difficulty, owing to the closeness with which the gland was drawn up to the abdomen. I would just ask, in passing, Would not the operation have been facilitated by the spreader used in Miles's operation?

Having fixed the clam and cut off the testicle I endeavoured to stop the bleeding by applying the thermo-cautery. I was not successful, partly, I think, from the extra-vascular condition of the cord, and partly from the instrument not retaining its heat when a free flow of blood came in contact with it. I therefore tightened the clams and left them on.

For three or four days pain was great, and some additional swelling took place. In about a week improvement in the general health was noticeable, and exercise was given. Another week or two elapsed, when the stiffness behind was again noticed, and fast work was followed by lameness. About five weeks elapsed between

the operation and my seeing the horse a second time. When led out of the stable there was noticeable stiffness of the hind quarters, straddling gait, dragging of the near hind limb, and a peculiar jerky extension of the tail when first moved. The scrotum was more swollen than when I first saw him, and two small fistulous openings were visible on its surface.

He was considered useless and shot.

A *post-mortem* examination was made. The structure of the scrotum was completely hidden in the swelling, which formed a tumour about eight inches across by ten long. This tumour was firm, and when cut into presented a number of small abscesses and one large one. On the left side a large artery was plugged by a firm fibrous clot. The plugging extended nearly to the inguinal ring, where the vessel was distended to nearly half an inch calibre. The remains of both spermatic cords were traced; the left one was still slightly enlarged, but nothing like what it was when last operated on. No appearance of anything abnormal was noticed on the portion of cord within the abdomen.

There are a number of questions suggested to me by this case, which I do not feel master of.

1st. Is scirrhus a malignant disease? To this I should say no. I look upon it as a simple product of inflammation. How is this set up? The answer given by every one is the same—irritation—and a vast number of different kinds of irritation are specified. In the case I have just described section of the tumour disclosed a very evident cause, two blades of grass being firmly embedded in its substance. May not similar causes of irritation be often at work and remain unnoticed? It is said that the common cause is adhesion of the cut cord to the lips of the wound made through the scrotum at the time of castration; but does not adhesion always occur? What comes of the cut end of the cord? It always adheres—at any rate I never saw the cord in a gelding with a loose extremity.

I have not done much castration; probably a hundred cases would cover my experience. I never had a case of scirrhus result. I have used clams, actual cautery, and ligature—chiefly the last. I take no pains to break down adhesions. Why have I had no scirrhus? I think that even if this adhesion has any effect in causing the disease some other cause must accompany it. Again, if adhesion be the chief cause, how is it that scirrhus does not inevitably follow the covered operation? As far as I can learn, it has never been seen as the sequel of any form of castration that does not include an opening of the tunica vaginalis, and this at once lets in air, and possibly other foreign sources of irritation.

Stretching of the cord has been mentioned as a cause; it may be one, but, if so, we should expect to sometimes see the disease occur higher up on the cord, and not merely always at the extremity. If stretching were a cause we should expect the disease always to recur, as far greater stretching is requisite to get above

a scirrhus and fix a clam than is ever required before the cord has been cut.

What are the proportions of scirrhus to the operations by clams, cautery, ligature, and écraseur or torsion? Are there any statistics, or is it the case that, from some cause not yet clearly defined, scirrhus may follow any mode of castration in which the scrotum is opened? Why is it that the left cord is always affected? Is it so? If it is, my theory of an accidental irritant is at once exploded.

*Scrotal fistulæ.*—In my case of scirrhus I described a scrotal fistula and its *post-mortem* appearances. This was of quite recent date, and we can only surmise what it would have been had the animal not been killed. I can now give you the result of an examination of a very old case.

I was asked to examine, with a view to removal, a large tumour on an aged chestnut cob. The tumour I was told was very large and situated between the hind legs, and had been forming for many months.

Recently the animal had not been worked, as lameness always resulted from any fast work, besides which it was most unsightly.

I found the cob fat and, with the exception of the swelling, healthy. The sheath, scrotum, and surrounding tissues were all involved in an immense swelling, about the size of a cow's udder. It was hard and very closely adherent to the body. Its surface showed three or four fistulous openings and a number of old cicatrices, marking the site of extinct fistulas. The mass was too large for excision, and on my advice the animal was shot. The history of the case was that the cob had, about two years previously, been castrated by a veterinary surgeon in Manchester. Scirrhus of the left spermatic cord followed. This was removed, but not successfully, as a second operation was necessary. The swelling of the scrotum had gradually increased in size and density from the time of the first operation.

On making a *post-mortem* examination the tumour was found to weigh 48 lbs. Sections of it showed a very dense fibrous structure, with here and there cavities containing pus, or that caseous matter signifying changes in the contents of an old abscess. The fistulous passages did not extend far, and communicated with cavities which evacuated their contents by means of the sinuses. Although the tumour did not appear sensitive it was very vascular, though this vascularity did not depend upon an abundance of capillaries, but rather upon the number of large blood-vessels. The two spermatic cords were found in a perfectly normal condition within the abdomen, and also in their passage through the inguinal ring. Their terminal extremities were completely lost amidst the dense structure of the tumour.

Commencing the discussion of the subject, *Mr. Martin* said that, with regard to fistula of the scrotum, he was of opinion that

it often arose from some diseased condition set up in the part independent of any injury to the cord, and this view, he thought, would be endorsed by his friends around him who practised in the country. He had but very rarely, if ever, found it necessary to advise the slaughter of an animal for this complaint. Lameness for a time was frequently caused, and he had seen cases in which there had been a discharge for two years, but in the instances in which the primary disorder was scirrhus recovery generally followed the extirpation of the end of the cord.

*Mr. Barford* spoke in favour of the actual cautery as the castrating instrument, and said his cases of scirrhous cord had been few and far between, not exceeding one or two in thirty years. In a tumour of the scrotum with multilocular abscess, such as the essayist alluded to, he should not expect to succeed in affording surgical relief, but would have a different opinion with regard to scirrhus of the cord, unless the disease extended to a great distance upwards.

*Mr. Hollingham* alluded to a case in which he found a scirrhous condition of both cords. He could only account for it by the supposition that it was due to the cords having been left too long; there might, he thought, have existed a predisposition to tuberculous disease.

*Mr. Samson* did not consider treatment would be successful in cases of fistula of long duration. He knew a horse so affected. The animal came out of the stable lame, but improved in gait after travelling; and the plan of keeping such patients at work his experience convinced him was the best. He said that when in Norfolk some few years back he witnessed a curious fact: every calf that was castrated that season had scirrhous cord. He could call to mind eighty or ninety cases in which the operation had been performed with the same unpleasant result. He was at a loss how to account for it, as the greatest care had been taken with regard to the cleaning and disinfection of the instruments used. The animals had to be again operated upon, and in some cases the whole of the scrotum was excised.

*Mr. Barford* suggested that perhaps the cautery had been used at too great a heat, but

*Mr. Samson* said that could hardly be the explanation, for what he was alluding to was not the result of one operator's performance only, but occurred uniformly in the practice of three neighbouring veterinary surgeons, and on several occasions they had changed cases, to see if different results would obtain, but no clue was found as to the cause of the disorder.

*Mr. Fleming* agreed with the conclusions of the essayist with regard to scirrhous cord, and he thought that leaving the ends of the cord too long was a probable cause of the mischief, inflammation being set up in the exposed portion. There was, he said, no doubt that some cases presented great difficulty to the operator. He was last year requested to see a valuable horse which was affected in this manner, and had for years suffered from a

scrotal fistula. It was found that the scirrhus extended far up into the inguinal ring, and was over two inches in diameter. After great exertion the chain of an écraseur was with difficulty made to surround the cord above the enlarged portion, which was then successfully removed; the division had to be made at a point at which it would have been impossible to use the knife. It was a desperate case, but he had reason to be gratified at the result, as the horse was at work in a very short time, and continued free from any return of his ailment. He had castrated a great number of animals in all climates, and had never known a scirrhous cord to follow.

*Mr. Caton* related a successful case of removal of a very large scirrhous cord, and, in regard to the great tension which can sometimes be put on the cord with impunity, gave details of a castration in which, through the struggling of the animal and insufficient assistance to restrain him, the cord was drawn down to a length of eight inches from the orifice; nevertheless the horse was quite well in a fortnight.

*Professor Axe* said he thought it would be generally conceded that the scirrhous formation was of inflammatory origin, and due to injury inflicted upon the end of the spermatic cord. There was nothing of a specific nature in the case, though he had in one or two instances seen the disease assume a malignant appearance. The causation of scirrhus might be referred to undue exposure of the end of the cord, also to the bruising of the structures between the metal clams, in which cases an inflammatory process was excited. He had seen it follow all methods of castration, more especially after the use of clams. He had been called upon to operate in a large number of cases, but had found no great difficulty in any instance, and he thought the structure of the parts accounted for that fact, as we had to deal with an inflammatory growth involving the vessels supplying the texture of the cord, which growth so surrounds and invests these vessels that they are reduced to a condition in which they are incapable of producing any serious results; the part affected might even be simply removed by the knife without danger; this he had proved in some cases of the operation. The first indication of the diseased condition of the parts was generally the issue of discharge from a small orifice in the scrotum; this would be found to communicate with the scirrhous end of the cord. It was his custom to probe the whole course of the sinus, and to take care to operate at a point beyond the seat of suppuration. He thought it possible for scirrhous cord to exist without lameness, and with regard to the question, "Is the swelling the cause or effect of the abscess?" he considered it due to a suppurative process going on in one or more centres.

*Mr. Woodger* said his experience of the malady was but slight. He agreed with Mr. Fleming in thinking that in many instances it was due to the length of the cord which was left.

*Mr. Hunting*, speaking of the prevalence of scirrhus in oxen,

said be had seen bulls castrated in a very free-and-easy manner, the testicles being forcibly pulled out, and it was a question for consideration whether this might not induce disease, or whether it had origin in a tubercular diathesis. He thought there was something which was as yet unexplained in the cause of this disorder. In the case he mentioned he dissected the morbid growth, and found in it two blades of grass, and another piece of fibre an inch and a half long. Might not a foreign body be frequently the origin of the scirrhus. No doubt the commencement of scrotal fistula was a scirrhous condition of cord, but the cases he cited showed that the diseased cord might be extracted, and yet leave the fistula uncured, a condition more difficult to relieve than the scirrhus, unless in those instances when we were not able to divide the cord high enough without much trouble. He thought in some cases of fistula a cure was exceedingly difficult to obtain; the abscesses were found in many parts of the diseased mass, and with no intercommunication.

The following members then dined together at the Horseshoe Hotel:—Messrs. J. W. Axe, A. Broad, J. Broad, Arthur Broad, J. Hall Brown, T. Burrell, H. W. Caton, E. M. Davy, H. J. Hancock, W. Hunting, T. Moore, J. Mosedale, T. S. Price, Wm. Pritchard, W. Roots, J. Rowe, F. G. Samson, C. Sheather, W. South, J. Woodger, and F. W. Wragg. The company included several members of the Southern Counties Veterinary Medical Association:—Messrs. J. D. Barford, Herbert Davis, A. Glover, C. F. Hogben, C. A. Hollingham, F. R. Ingersoll, J. B. Martin, P. A. Rock, and H. J. Simpson.

ALFRED BROAD, *Hon. Sec.*

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## LANCASHIRE VETERINARY MEDICAL ASSOCIATION.

THE usual quarterly meeting of this Association was held at the Blackfriars Hotel, Manchester, on Wednesday, September 12th, the president, Mr. Wm. Woods, occupied the chair. There were also present Messrs. Thos. Greaves, Peter Taylor, Wm. Dacre, Wm. Whittle, Geo. Morgan, M. G. Roberts, A. Lawson, S. Locke, W. A. Taylor, Thos. Briggs, E. Kitchen, J. W. Ingram, A. M. Michaelis, J. Hart, J. Litt, Wm. Davidson, and J. B. Wolstenholme. Also visitors: Messrs. C. Phillips, J. Carter, A. New; and four other gentlemen.

The minutes of the last meeting were read and confirmed; and letters of excuse were received from Messrs. Jno. Lawson, Hy. Thompson, Prof. Williams, E. Faulkner, and Rd. Reynolds.

The correspondence which had taken place between Mr. Rolls and the secretary was put before the president.

*Mr. S. Locke* then moved "That the sum of fifty guineas be subscribed out of the funds of this Association towards raising

£1000 for the building fund of a New Royal College of Veterinary Surgeons, so as to complete the conditions under which the late Mr. Field has bequeathed £1000 to the same object."

This resolution was seconded by *Mr. W. A. Taylor*, and was carried unanimously.

*Mr. W. A. Taylor* then related a case of fracture of styloid process of occiput of a horse, complicated by the formation of an abscess, which resulted in a fistula opening on the angle of the jaw. This had resisted previous unskilful treatment at other hands, for months; but when Mr. Peter Taylor and he opened up and explored the same the process of bone was found to be only very slightly attached at its base. They removed it with bone forceps, and the wound healed in a few days afterwards.

*Mr. J. Hart* exhibited a pointer puppy with a curious affection of one eye.

*Mr. Wm. Dacre* then read an able paper on "The Etiology of Glanders," and contended that the disease was specific in its character, and could only be produced by introduction of its special poison. Messrs. P. Taylor, T. Greaves, J. Carter, S. Locke, W. A. Taylor, C. Phillips, A. Lawson, and J. B. Wolstenholme joined in the discussion; some holding with the essayist, whilst others argued that the malady had also a spontaneous origin when horses were placed under bad hygienic conditions.

*Mr. Dacre* having replied, the discussion was adjourned until next meeting, when Mr. Greaves undertook to reintroduce the subject on a broader basis.

*Mr. Alex. Lawson* proposed that "a vote of thanks be given to Messrs. Wm. Dacre, W. A. Taylor, and J. Hart, for the valuable paper and cases they had brought before our notice."

This was seconded by *Mr. Peter Taylor*, and carried unanimously.

J. B. WOLSTENHOLME, *Hon. Sec.*

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## MIDLAND COUNTIES VETERINARY MEDICAL ASSOCIATION.

A MEETING of the above Association was held at Leamington on September 20th, the President, Mr. W. Carless, of Stafford, occupied the chair, and Captain Russell, of Grantham, the vice-chair. The other members present were: Messrs. Osborne Hills, Leamington; Lawrence C. Tipper, Hon. Secretary, Balsall Heath; H. M. Stanley and J. M. Parker, Birmingham; H. Collett, West Bromwich; E. Meek, Walsall; W. Dale, Coventry; A. B. Proctor, Solihull; Alfred Over and J. S. Barber, Rugby; Thomas Greaves, Manchester; Edward Stanley, Warwick, and F. Blakeway, hon. Treasurer, Stourbridge. Among the visitors were: Messrs. B. Meek, Birmingham; Anderson, Warwick;

Walter Burt, A.V.D., Coventry; E. G. Stanley, Warwick; John Stanley, M.R.C.S.E.; Baxter White, proprietor of the *Leamington News;* Dudley, W. Thirlen, &c.

The *Secretary* read letters and telegrams of apology from F. W. Wragg, H. R. Perrins, P. Taylor, W. Sanders, H. J. Cartwright, R. H. Cartwright, H. D. Pritchard, Jas. C. Barling, Alfred Hodgkins, R. C. Trigger, and G. Carless.

The *Hon. Secretary* intimated that, as instructed at the previous meeting, he had written to Mr. Morgan, the secretary of the National Veterinary Benevolent and Defence Association, advising him of the election of Mr. Blakeway as Life Governor of that Association, but had received no reply.

*Mr. Blakeway* intimated that he had not heard from Mr. Morgan.

The meeting requested Mr. Tipper to address another communication to Mr. Morgan on the subject.

*Mr. Blakeway* called attention to the failure of the Association to secure a representative on the Council at the last May meeting, and attributed the non-success to the want of joint action with other provincial associations. The nominee of this association, Mr. Olver—who was eminently worthy of the honour proposed to be conferred upon him—only received 160 votes, while the highest on the poll scored 679. Unless the provincial associations went hand in hand the Londoners would always carry their men. When Mr. Perrins was elected by 419 votes he stood fifth on the list, 738 votes having been given for the highest candidate.

*Mr. Greaves* concurred in Mr. Blakeway's observations and regretted that last year was not the first occasion on which the cold shoulder had been given by this Society to others in the provinces.

The *Hon. Secretary* reminded members that at the meeting at which Mr. Olver was nominated, he received no instructions as to applying to other provincial associations although he particularly asked for instructions. He, however, communicated with some of them on the subject, but recived no reply; and consequently there was no amalgamation.

*Mr. Blakeway* gave notice of his intention to move at the next meeting a proposition in favour of co-operation with other associations.

*Mr. Meek* considered that they placed the secretary in an awkward position, they should instruct him with what associations to co-operate.

The *President* exonerated the secretary from any blame in the matter.

### *Members and the Registered Practitioners.*

The next business was "to consider correspondence from Mr. A. G. Rolls, M.R.C.V.S., Arundel, Sussex, and others, relative to an Order in Council bearing date May 10th, 1883, by which

Article 121 of The Animals Order is revoked, and in addition to members of the Royal College of Veterinary Surgeons and holders of the Certificate of the Highland and Agricultural Society, it is considered a sufficient qualification for the post of veterinary inspector, that the holder is registered as an existing practitioner under Section 15 of the Veterinary Surgeons' Act, 1881."

The correspondence commenced with a letter dated May 24th, from Mr. Rolls, in which he wrote strongly of the action of the Privy Council, and in one letter he suggested, that the veterinary inspectors should resign *en masse* unless the Order was withdrawn.

In one letter, dated June 5th, addressed to Mr. Rolls, Mr. Tipper wrote

"I have been communicating with our President and the secretaries of three other associations as to your letters.

"Our president thinks we cannot as an association take action unless our members are first consulted.

"Mr: Wolstenholme, Hon. Sec., Lancashire V. M. Assoc., wil not take action until next meeting of his association.

"Mr. Broughton, Hon. Sec., Yorkshire V. M. Assoc., considers the action of the Privy Council an indignity on the profession, but sees no other course than waiting for a meeting of his association, the middle of July, when the question will be brought forward.

"Mr. Morgan of the Liverpool association has not replied.

"Dr. Flemming wrote Mr. Tipper on September 8th, from Brussels. I am here attending the International Veterinary Congress, I intend to bring the subject before the Council of the Royal College of Veterinary Surgeons next meeting, and will request Professor Brown to be present to explain the action of the Privy Council. Until we hear the reasons of course action would not be advisable. You may depend upon my doing all I can to get justice done. The Council meeting will be held towards the end of this month."

The last letter, dated 13th September, was from Professor Duguid, who, in the absence of Professor Brown, wrote that he considered the new order was the natural result of the Veterinary Surgeons Act, by which these existing practitioners were by Act of Parliament recognised as qualified to practise.

*Captain Russell* mentioned that the Lincolnshire Association had instructed their secretary to communicate with other secretaries on the subject.

*Mr. Tipper* said he had not received any communication.

*Mr. Greaves* considered it useless to attempt to induce the Privy Council to alter the order. The meeting should be glad to have been delivered from the time when policemen and butchers were allowed to act as veterinary inspectors. The Liverpool and Manchester Association had taken no notice of the order. It was the opinion of Professor Axe and others that the regis-

tered practitioners should be allowed to attend meetings of country veterinary medical associations, and also to join as members. (Expressions of disapprobation.) At the Leeds meeting he intended to move a proposition declaring registered practitioners ineligible for membership. (Loud approval.)

The *President* remarked that although agitation was a good thing for securing redress of grievances, but little could be gained from it in the present instance. The Privy Council endorsed the action of the local authorities, consisting of magistrates, who gave the preference to members of the Royal College of Veterinary Surgeons.

The subject then dropped.

*Mr. Blakeway*, according to notice, proposed "That the Association vote a sum of fifty guineas to the building fund of the Royal College of Veterinary Surgeons." He pointed out the desirability of the college possessing suitable premises, and made special mention of Mr. Field's bequest of £1000 towards the building fund if another £1000 could be raised during the current year. The Midland Counties Veterinary Medical Association had, in June last, a balance in hand of £140 19s. 8d.; and it could, therefore, afford the contemplated grant, which would be a fitting recognition of the liberality of Mr. Field, who had been most anxious to improve and elevate the profession to which they belonged.

*Mr. H. Stanley* inquired what was the amount of the building fund before Mr. Field's bequest was known?

*Mr. Blakeway.*—The funds are somewhat considerable. I believe that the sum of £2000 is in the bank.

*Mr. H. Stanley* regarded the proposal as being rather large, and recommended the meeting to ascertain what other associations were doing.

*Mr. Greaves* seconded Mr. Blakeway's proposition, and mentioned that when the Lancashire Association proposed to subscribe £25, he objected that the sum was unworthy of that old and influential society; and the members unanimously increased the gift to £50. There were between two and three thousand pounds in hand in behalf of the building fund. He had recommended that every member of the veterinary profession should be requested to subscribe; and he, Mr. Fleming, and others headed the list with sums ranging from £20 to £25. It was hoped that no difficulty would be experienced in obtaining the sum needed before the end of the year in order to secure Mr. Field's bequest.

*Mr. Parker*, considering that Mr. Blakeway's proposition did not go far enough, moved, as an amendment, that this vote be increased to a hundred guineas, in the hope that other associations would be stimulated to follow their example.

*Mr. Osborne Hills* seconded Mr. Parker's amendment, and warmly commended the building fund to the liberal support of the veterinary profession.

*Mr. H. Stanley* reminded members of the difficulty experienced a few years ago in keeping the association together, and cautioned them against impoverishing the funds. Fifty guineas formed a donation worthy of the Midland Association. It would be well to wait and see what other associations did before exceeding fifty guineas.

*Captain Russell* considered fifty guineas sufficient, and recommended that if the Association could spare the money, the meeting should vote £10 each to the poor widows, of whom they had lately been reading in their journals.

*Mr. Blakeway* withdrew his proposition in favour of Mr. Parker's amendment.

*Mr. Greaves* mentioned that the Lancashire Association voted all the money in hand—£38, and the members added £12, to make it an even £50.

The *President* considered that £50 represented all that could at present be expected from the Association. If the £1000 required to meet Mr. Field's condition was not likely to be raised this year, the Association might re-consider the matter. (Applause.)

The meeting adopted an amendment by *Mr. Stanley*, voting fifty guineas to the building fund, and stipulating that if further help should be needed, the subject shall again be submitted for consideration.

Mr. E. Stanley, F.R.C.V.S., then read the following paper on·

## VETERINARY MEDICAL ETHICS.

Mr. President and Gentlemen,—In introducing the subject of Veterinary Medical Ethics, I beg you will understand that I do so with a view of promoting a better feeling amongst ourselves as a body in our professional intercourse, and as we individually aim at a higher standard of honorable courtesy one to another, so we shall gain the moral support of our clients. They treat us as though ethics were unknown to us, although there is an unwritten code of honorable dealing. I cannot help thinking that if we could agree to define it, even by only a limited code of rules, we should be laying the foundation of the advancement of our professional standing, to the benefit of our clients and of our patients, as there cannot be a doubt that we and the public often err from ignorance in our treatment of each other. As a guide, I have taken Dr. Styrap's 'Code of Medical Ethics,' and propose to abstract freely from his excellent and accepted work, and modify the wording, to make it applicable to our body.

Our profession is an honorable and noble one. We have to fight against disease and relieve suffering in creatures absolutely necessary to the welfare of mankind. Although our patients cannot speak vocally, yet their dumb language is as an open book before us; we are constantly studying its language, and I know nothing more interesting, more varied, or capable of giving

more intense satisfaction than this study—the every-day habits of our different patients in health and disease, their *movements.* Nothing is more beautiful than to watch animal life in the enjoyment of health; and who does not feel the sense of sympathetic pain on beholding the distorted and painful movements of a suffering creature. The beautiful glossy, clean appearance of the healthy skin is quickly lost on the invasion of disease.

The countenance of the horse (quoting from Whyte Melville) denotes courage, docility, good temper, reflection (for few faces are so thoughtful as that of the horse), gratitude, benevolence, and, above all, trust. Yes, the full brown eye, large and mild and loving, expresses neither spite, nor suspicion, nor revenge. It turns on you with the mute unquestioning confidence of real affection, and you may depend on it, under all pressure of circumstances, in the last extremity of danger or death.

The patient and trusting expression, full of life and energy, is changed by disease, showing languor, depression, indifference, and often intense agony. It is our noble duty to know and recognise these different states, and to assist nature in restoring and maintaining these poor creatures in the enjoyment of health.

We have another duty often devolving upon us—the question of life or death. It is a most painful subject, and one from which we all shrink, but we are bound, by the vastly higher knowledge we possess (by our special training) of the suffering of the brute creation, to do all in our power to shorten the period of suffering by humanely ordering the creature's destruction.

We should not forget that in a wild state a wounded animal, or one grievously ill, is often attacked by its fellows or by other beasts of prey, or it succumbs to an early death by exposure to climate or deprivation of food. Whereas our sick or incurably lame are by domestic management so treated that by prolonging life we prolong suffering, so that we should feel, *in the interest of the creature*, we are in taking its life doing our duty to the best of our judgment for that creature's good.

It is to my mind a source of pride and pleasure to feel that the knowledge of animal suffering has been mainly inculcated and extended by veterinary knowledge and the noble Society for the Prevention of Cruelty to Animals is a result, and one that will always receive our earnest support.

Our profession not only teaches us patient observation and kindly feeling for animal life, but the exercise of it makes us self-denying, persevering, and enduring. Exposure to the vicissitudes of our climate, anxiety for our patients, and the constant and very varied character of our clients, call forth all the talent in us, in order to do our duty to them, our patients, and ourselves.

Such a life should tend, and I maintain is tending, to ennoble us as a body. Our science is still so young that the memory of our fathers' practice, to bleed and physic, which, in accordance with their knowledge, is still fresh in our memories; but gradu-

ally we are groping from darkness into light. No doubt their unremitting attention and persevering observation developed the mental faculties I have enumerated above. And by special training our minds are able to grasp more of this inexhaustible study, and it naturally tends to elevate our minds and form our characters, so that our relations one to another are becoming daily of more interest and importance; and we, feeling this, associate together for mutual improvement and advancement, and as we increase in knowledge so we also increase in numbers, crowding on each other for existence; hence arise, in the place of brotherly love, a spirit of rivalry or jealousy, which we should strive to control and resist as baneful to our general interests and derogatory to our manhood; and until we are true to ourselves we shall remain inferior to other professions. We call ourselves brethren; are we fraternal? Do we strive to elevate self at the expense of our neighbours by invidious remarks and unworthy artifices? Let us remember the great moral precept: "Whatsoever ye would that men should do unto you, even so do unto them," and so foster a more generous *esprit de corps*.

Let us act as Christian gentlemen, remembering our province is to heal, not to inflict injuries, while being mindful of our good name, on all occasions conscientiously uphold the reputation of our friends and competitors.

Such social meetings as we are now holding are eminently calculated to exert a beneficial and moral influence upon us by encouraging habits of intercourse and exchange of thought, enlarge our sympathies, and tend to our mutual support, and will teach the public to respect us as a body at unity with itself. Our presence here to-day proves an innate desire for our social union and moral improvement; and I trust our efforts will be earnestly supported by other associations and the profession generally. Individually, let us each strive to live in harmony and good fellowship, rivalling each other only in good conduct and feeling. Be ever ready to lend a helping hand when needed, and defend a brother's character when attacked, so that we may live and die respected and honoured.

A veterinary surgeon, qualified by his special training, is entitled to be attentively and respectfully listened to and courteously treated, and his advice carefully carried out; he should have credit for sincerity of purpose, honest zeal generated by the learning and impartial observations accumulated from age to age, as contrasted with the low arts and crooked devices and purely selfish ends of the charlatan, whose unscrupulous announcements of marvellous cures by simple but secret means are misleading and false, and, so far, fraudulent.

If a practitioner has rights he also has duties; he cannot rightly refuse his professional services, except when such concession would be unjust and derogatory to himself or to a brother practitioner.

He should be ready and prompt in professional aid to rich or

poor, without stipulating for undue personal advantage, which is dishonoring and deserving of severe censure.

It is a noble unselfish task to promote health and obviate disease by the judicious application of hygienic science, and it is our duty to denounce quackery in all forms, which only exists on the ignorance of the credulous public, which we should make it our aim to enlighten.

We should be kind and forbearing with our patients; a quiet gentle manner is of great aid in assisting diagnosis of disease, and cruel restraint should be avoided; confidence, distrust, and fear are readily communicated from man to animals. We should remember our experience is so exceedingly more extensive than theirs; hence knowledge gives us power.

In professional intercourse let our self-respect make us courteous and high-minded; above all things be truthful and candid, closing our ears to slander, cultivating social intercourse, and courteously but resolutely insist on our rights.

We must remember that no laws, however stringent, will make a man honorable who is not innately inclined to be so, but while admitting this general truth we affirm that a *good* example is calculated to exert an almost equally powerful influence with that for evil, and, therefore, that the *morale* of the truly honorable members cannot fail to exercise a very important influence over those who might by nature be otherwise inclined; for however much the latter may affect to despise the good opinion of the local practitioners, yet knowing, as they well do, that on the formation of an ethical committee in each association unprofessional conduct will be brought under the cognizance of their brother members in their respective districts, and, if need be, of the profession at large.

## Code Table.

### Chapter I.—On the Duties of Veterinary Practitioners to their Clients and Patients, and the Obligation of Clients to their Veterinary Advisers.

#### Section 1.—*The Duties of Practitioners to their Patients.*

A veterinary practitioner should readily obey calls to sick patients, not forgetting the responsibility of his mission, and that his obligations are the more enduring, as there is no reprimanding judge but his own conscience in case of carelessness and neglect; let him combine skill, attention, and fidelity, with gentleness, firmness, and authority, so as to inspire the minds of his clients with gratitude, confidence, and respect.

Cases of urgency require frequent visits, but unnecessary visits should be avoided, as tending to diminish the authority of the practitioner, and render him liable to be suspected of interested motives, and thus discredit the profession.

A practitioner should never unnecessarily make a glowing prognostic in order to magnify the importance of his services.

A practitioner is not justified in abandoning a patient because the case is incurable, so long as his instructions are duly carried out, always remembering while there is life there is hope. Nevertheless circumstances may justify a man relinquishing the care of his patient, such as indiscreet and unwarrantable interference with his treatment; in such necessity a practitioner's innate self-respect will indicate the course he should pursue.

In difficult or protracted cases consultations should be freely and judiciously promoted, as they engender confidence, evoke energy, and enlarge views of practice.

A veterinary surgeon often has opportunities of relieving suffering by enlightening the owner on the disastrous consequences that must ensue from his persistent overloading, straining, overworking, negligent feeding, ill-sheltering his stock, &c. &c., and it is one of the most noble services we can render the brute creation, and if tendered with feelings of courtesy will give satisfaction rather than offence.

SECTION 2.—*Obligation of Clients to their Veterinary Surgeon.*

The members of the faculty, on whom devolve so many arduous and anxious duties in the interests of their clients, are called upon to sacrifice rest, comfort, and health, and night journeys and inclement weather, and even exposure to infectious diseases. Such sacrifice entitles them to expect moral obligations from their clients and considerate and honorable treatment.

A client's duty is to select a duly educated and registered practitioner. Veterinary medicine is a most difficult and intricate science, and no one can be supposed to obtain knowledge of its mysteries intuitively.

A client should apply early, in case of accident or illness, as too many cases are past remedy simply from unwise delay in seeking aid, and then the veterinary art is unjustly reproached.

A client should faithfully represent the history of his case, as our patients cannot verbally refute erroneous statements, which might mislead the practitioner and could not aid the patient.

A client should insist on our instructions being promptly and implicitly carried out, being uninfluenced by his own or other crude opinions; for a failure in any one particular may render an otherwise judicious plan of treatment hurtful, and even dangerous; and relapse is not uncommon from indiscreet disregard as to diet, exercise, or exposure.

A deaf ear should be turned to all self-constituted doctors and their infallible remedies, which are more frequently productive of much mischief instead of relief, and interfere with the authority of the medical attendant.

Clients should, when practicable, send for their veterinary surgeon early in the morning, so as to enable him to apportion his time, and to obviate any clashing of engagements. They should avoid the hours of meals and of sleep, as a laborious life merits due repose.

CHAP. II.—ON THE DUTIES OF VETERINARY PRACTITIONERS TO THE PROFESSION, TO EACH OTHER, AND TO THEMSELVES.

1. Every one who enters the profession, and thereby becomes entitled to its privileges and immunities, incurs the obligation to exert his abilities to promote its honour and dignity, to elevate its status, and extend its influence and usefulness. He should therefore strictly observe such laws as are instituted for the guidance of its members, and avoid all disparaging remarks relative to the faculty as a body, or its members individually; and should seek by diligent research and careful study to enrich the science and advance the art of veterinary medicine.

2. It is incumbent on the faculty to be temperate in all things, for the practice of physic requires a clear head, steady hand, and a quick eye, always ready for any emergency.

3. It is derogatory to the profession to solicit practice by advertisement, circular, card or placard; also to offer gratuitous advice, or to publish or knowingly permit to be published cases and operations in the daily press; to invite non-professional men to be present at operations; to boast of cures and remedies; to adduce testimonials of skill and success, or to do any like acts.

Such are the ordinary practices of charlatans, and are incompatible with the honour and dignity of the profession.

4. Equally derogatory to professional character is it for a practitioner to hold a patent for any proprietary medicine or surgical instrument, or to dispense a nostrum, or to attest the efficacy of patent or secret medicines, or to sanction the publication of written testimony in favour of articles of commerce, or to enter into a compact with a druggist to share profits arising from the sale of medicines. No practitioner desirous of upholding the dignity of his profession should resort to any unprofessional devices.

SECTION 2.—*The Duties of Practitioners in regard to Professional Services to each other.*

1. All members of the profession are entitled to the gratuitous services of the neighbouring faculty for their personal patients (travelling expenses excepted); kind offices, and professional aid should always be cheerfully and freely afforded, on the principle of—Do as you would have others do to you.

SECTION 3.—In case of accident or illness, it is an act of Christian duty to offer assistance; but if a practitioner seeks pleasure or amusement, and requires aid in his neglected business, for such services he must give remuneration.

SECTION 4.—*The Duties of Practitioners in Consultation.*

The possession of a diploma of the Royal College of Veterinary Surgeons or of a recognised Continental or Colonial College ought to be the only right to the honours of the profession. However, the recognition of existing registered practitioners

must be left to individual taste; but where animal suffering is concerned we should not be too fastidious. A homœopathist (or unqualified assistant) is not entitled to consultation with a practitioner; he cannot countenance what he does not believe, and therefore would act dishonestly.

2. In consultations feelings of emulation and jealousy should be laid aside, and the most honorable and scrupulous respect for the character and standing of the practitioner in charge of the case should be observed, and the treatment of the latter justified, as far as is consistent with regard for truth, and no hint or insinuation thrown out to damage his reputation.

The consultant should also carefully abstain from any of those inordinate attentions which have been sometimes practised by the unscrupulous for the purpose of gaining undue credit or ingratiating himself, and for a consultant to take up the treatment of a case by ousting the practitioner is a monstrous breach of etiquette.

3. In consultations the consultant fixes the hour of meeting, and after the preliminary conference relative to the history of the case the consultant proceeds with his examination to satisfy himself of the true nature of the case, but no observation of any kind, indicating an opinion as to the nature of the malady, treatment pursued, or its probable issue, should be made in the hearing of the owner or his servants until the consultation is concluded.

Both practitioners should retire for deliberation, and the opinion and treatment having been determined by the consultation of himself and colleague, he (the consultant) should express to the employer the opinions and directions agreed upon, and no *opinions* or prognostications other than those mutually assented to after deliberation should be expressed.

4. It will be the duty of the regular attendant to see the measures agreed upon faithfully carried out; but in the event of unexpected change in the case requiring alteration of treatment, such an event must be fully explained at the next consultation. The same privilege and duty devolve on the consultant when sent for in the absence of the regular attendant.

5. Punctuality in appointments should be strictly observed. In the event of unavoidable delay in the arrival of one of the parties, after waiting a reasonable time, the consultation should be deferred until a new appointment can be made.

In the absence of the consultant the regular practitioner will treat his case, but should the practitioner be absent the consultant should retire, unless it is a case of urgency, or he has been summoned from a long distance, under which circumstances he may examine the patient, and express his opinion in *writing* and *under seal*, to be delivered to his associate, and in the meantime should meet the emergency by such treatment as he may deem necessary.

6. In consultation a Fellow of Veterinary Medicine is entitled to precedence of the general practitioner.

7. If when more than two practitioners have met in consultation an irreconcilable diversity of opinion unfortunately occur, that of the majority should be acted upon, the greatest moderation and forbearance should be observed and the issue communicated to and left to the client.

It may happen that two practitioners fail to agree in their views of a case, and the treatment to be pursued (an incident always to be much regretted), and if possible avoided by such mutual concessions as are consistent with the dictates of judgment.

If, nevertheless, a difference of opinion exists, it would be well to call in a third practitioner, or leave the client to select the one in whom he would wish to confide; at the same time, as every practitioner justly relies upon the correctness of his judgment, he should, when unable to concur in the treatment adopted, consistently and courteously retire from any further participation in the consultation or management of the case, unless exceptional circumstances intervene.

8. In consultations discussions should be regarded as private and confidential, and neither by word or manner should any of the parties intimate dissent from the treatment as unsuited to the case.

The responsibility and imputation of failure, however unjust, should, equally with the credit of success, be shared alike by the respective practitioners.

9. Whenever a second opinion is desired the attending practitioner should not demur, probably thinking a consultation evinces personal distrust in himself, as every man has an indisputable right to further advice if he wishes it; therefore it is well to share the responsibility with a second practitioner.

10. The consultant has no claim to be regarded as a regular attendant on the patient, and his attendance ceases after each consultation.

The client or his veterinary adviser is at liberty to call in any other consultant without the cognizance of the former, provided no appointment then exists.

N.B.—Should the practitioner who has been called in consultation be subsequently requested to take sole charge of the case he should courteously but firmly decline.

SECTION 5.—*The Duties of Practitioners in reference to Substitutes, and in incidental Interference with other than their own Patients.*

1. Veterinary medicine as an art and science is a liberal profession, and those admitted into its ranks should found their expectations of success in practice on the nature and extent of their scientific and personal qualifications, and not on artifice and intrigue.

2. When a practitioner, from motives of friendship or the necessities of business, is prompted to visit a patient under the

professional care of another he should observe the strictest caution, circumspection, and reserve. No meddling inquiries should be made, no disingenuous hints given relative to the nature and treatment of the disease, nor any line of conduct pursued that may directly or indirectly tend to diminish the confidence reposed in the regular attendant. Indeed, such visits should be avoided.

3. When during sickness or absence from home a practitioner entrusts the care of his business to a professional friend the latter should make no charge, being virtually the *locum tenens* of the absentee. If circumstances permit, a fitting acknowledgment should be made.

4. When a practitioner attends for or in consultation with another, and it appears necessary to change the treatment, it should be done with the most scrupulous care, so as not to injure the reputation or wound the feelings of the previous attendant. *Un*necessary meddlesome interference with the treatment should be carefully avoided, as unjust to the attending practitioner and derogatory to true science.

5. Should a consultant find the ordinary veterinary attendant has misunderstood the case, or, it may be, committed a grievous error, he should, while doing his duty to the patient, endeavour to shield his brother practitioner from the obloquy and prejudice which are sure to be accredited to him for an error in judgment; for who, it may be replied, has not in the course of his professional life committed like grievous errors, of which the still small voice within is alone cognisant and the sole accusant.

6. When a practitioner is called to an urgent case in another's practice he should, when the emergency is provided for, resign the case; but he is entitled to charge the client for his services.

7. When a practitioner is called in to or consulted about a case under the care of another veterinary surgeon he should on no account interfere (except in emergency), but request a consultation with the gentleman in previous attendance.

8. If the client is capricious and obliges his ordinary veterinary surgeon to relinquish his patient, and explains this to another veterinary surgeon, the latter is exempt from dishonorable conduct in taking up the case.

9. When a practitioner is consulted at his own residence, it is not necessary, but better, to inquire if the patient is under another's care, so as to arrange a consultation.

10. When a practitioner has officiated for, or been called in consultation by, another, and the ordinary veterinary surgeon has resumed exclusive attendance on the case, the former should not under any pretext, friendly or otherwise, visit the case.

11. In case of accident or sudden illness, and a neighbouring veterinary surgeon being called in, should request the usual veterinary attendant to be sent for, and at once resign the case to the latter on his arrival.

12. In like manner, when a veterinary surgeon is asked by another practitioner's client to examine a horse as to soundness, if he can ascertain that the examination has already been made by his own veterinary surgeon, he should courteously but firmly insist on a consultation before expressing his opinion.

13. A retired practitioner should abstain from giving gratuitous advice, for to dispense with fees which may justly be claimed is defrauding the faculty, therefore unjust and unprofessional.

SECTION 6.—*The Duties of Practitioners when Differences occur between them.*

1. Publicity in cases of ethical disputes should be avoided, as generally society fails to understand or will not care to enter upon the merits of the disputants, and injury may be done to one or other of the parties; therefore it is better to refer to a Court of Veterinary Arbitrators.

I propose, though as a secondary consideration, that every veterinary medical association should appoint three of its members as an Ethical Committee for arbitration, with power to take their President into consultation, and, if necessary, to bring the matter before the members of the Association.

Where the disputants are not members of any association, a local Ethical Court could be formed, by reference to three practitioners being agreed upon as arbitrators.

In all cases of arbitration a written statement of the charges preferred, and a like answer thereto, should be required from the respective disputants, with such affirming or rebutting testimony as may be essential to elucidate the facts of the case; and after giving careful consideration to the evidence adduced, the members of the court should give their opinions in succession, beginning with the junior, so that he may not be influenced by the opinion of his senior.

As a rule, however, no arbitration should be undertaken until the accusant has, either in person or by note, communicated with the accused on the subject of complaint, and failed to obtain an explanation or redress.

It may here be well to repeat that experience and observation leave little doubt that, in numerous instances, professional differences arise from some misrepresentation or suppression of the truth (a fruitful source of the unhappy differences, heart-burnings, and jealousies, which too frequently disgrace our profession!) by clients or their friends, rather than direct unethical conduct on the part of the practitioners. Be that as it may, it is equally the duty of everyone who thinks himself aggrieved, to dispassionately consider whether he really is so, for unhappily some men are so morbidly sensitive, suspicious, and jealous, that e'en were they to be associated with (so to speak) mundane angels, they would fancy their ground invaded, and their rights and self ignored. A medical man should ever be slow to admit

that a brother practitioner has knowingly and intentionally wronged him ; a little reflection and reasonableness would often suggest an explanation of conduct that, at first, may seem offensive or selfish.

Assuming, however, that he is really injured—that a neighbouring practitioner has acted unethically, and, mayhap, repeatedly so. What, in such case, is to be done ? His duty is certainly, as yet, not to publish to the world his personal quarrel, for professional quarrels are discreditable, and not to be lightly proclaimed. Moreover, when a man is clearly in the right, he can afford to exhaust all gentle means of remonstrance and redress ; and, in strict accordance with both scriptural and professional ethics, he should, either in person or by courteous note, "go and tell his brother his fault" privately. Should that fail, and the aggrieved party be ultimately obliged to refer the matter to the arbitration of a mutual professional friend, or to a "Court Medical," even then his object should be, not that the offender should be "shunned," but effectually rebuked and convinced of his error. Such object is, in many cases, more likely to be gained by private than by public means. But, as there are men in the veterinary, as in other professions, who can only be effectively influenced by public censure, this under certain circumstances would be a perfectly legitimate *dernier ressort* through the action of the Ethical Court.

## Chap. III.—On the Duties of the Profession to the Public, and the Obligations of the Public to the Profession.

### Section 1.

1. It is the duty of the faculty, as good citizens, to be vigilant for the welfare of the community, especially to advise the public on matters appertaining to the profession, such as veterinary sanitary science, and police, giving information as to regulations and isolation on the outbreak of infectious or contagious disorders ;—also as to drainage, water supply, ventilation, &c., of the habitations of domestic animals, to ensure their health, the importance of which is daily increasing, as the knowledge of the communicability of diseases from the lower animals to mankind becomes more widely recognised.

2. Veterinary surgeons should always be ready to assist the legally-constituted authorities by enlightening them on matters pertaining to the profession--and not least of these is the prevention of cruelty to animals. This is of importance, inasmuch as the prosecutors are often led away by sentiment, kindly meant but erroneous, from their ignorance of animal organization, hence the value the authorities always attach to a veterinary surgeon, which should be zealously upheld by strict adherence to truthful testimony. A skilled witness should never allow his personal feelings to overcome his sense of justice.

The fees for attendance in Court is often inadequate, and it

may be prudent for a practitioner to stipulate for a specified fee, as is the rule with counsel.

SECTION 2.—*The Obligations of the Public to the Profession.*

The public ought to entertain a just appreciation of a veterinary surgeon's qualifications, obtained by a long course of education, apprenticeship and study, involving time and money, without the slightest aid from the State. How much has been done in the suppression of contagious diseases such as glanders, mange, &c., the improvement in ventilation of stables, saving of horses' feet from mutilation, by the diffusion of knowledge—the outcome of persevering veterinary research.

They (the public) should discountenance the employment of charlatans and assuming dabblers in medicine, and also the use of quack remedies and advertised secret nostrums, which too often have a baneful influence on the dumb sufferers, and are ignorantly and injudiciously used, even to the sacrifice of animal life, and therefore are a public fraud.

CHAP IV.—THE RULE OF THE PROFESSION ON COMMENCING PRACTICE.

1. A practitioner in commencing business should call on all the local practitioners and courteously announce his intention of settling in the neighbourhood, and should encourage social intercourse and friendly feeling for his own good and the professional welfare.

Gentlemen,—Having now introduced the subject of Veterinary Ethics, I leave the matter in your hands for discussion; and I hope the first Ethical Committee will be formed in our Association, and to-day, to consider the advisability of introducing a code of rules which may be recognised by the profession, and to invite the co-operation of the National and the other Veterinary Medical Associations in carrying out the ideas suggested.

I have to thank you all for your very courteous attention to what, I fear, has been of necessity a dry subject.

*Captain Russell* had listened with very great pleasure to Mr. Stanley's essay, in the sentiments of which he fully concurred. It was advisable to form a committee to prepare a code of rules for consideration at a future meeting. He hoped that no member of the Association would have occasion to bring any matter before the Consultation Board. They could not expect, however, to find every one working for the common good. He hoped to see greater harmony among members of the veterinary profession, and more regularity in regard to fees.

*Mr. Greaves* was deeply grateful to Mr. Stanley for his able paper. The subject had been handled in a gentlemanly manner, and much could be learned from it respecting professional ethics. He inquired if the meeting considered it would be in accordance

with professional etiquette for a member of the Royal College of Veterinary Surgeons to hold a consultation with a registered practitioner.

*Mr. E Stanley* considered that in the interests of their patients such consultations were advisable, but the matter must be left to individual tastes.

*Mr. Greaves* expressed his approval of the formation of a committee to frame a Code of Ethics.

*Mr. Meek* thought members would do well to "read, mark, learn, and inwardly digest" the paper, and try to act up to the standard therein laid down.

*Mr. Proctor* felt that the essay was a useful guide, but feared that the formation of a court of inquiry would be fraught with mischievous consequences.

*Mr. Blakeway* confessed that on seeing the subject on the agenda paper he had an apprehension that it would diminish the attendance that day. It was a question of vital importance. How often men in high position bribed the coachman in order to get employment, and when called in for a consultation they tried to supersede the regular practitioner. How often gentlemen were seen in the law-courts condemning the conduct of their brethren, who performed operations necessary for the patient and beneficial to the owner. It must not, however, be supposed that members of the Royal College of Veterinary Surgeons were the only professional gentlemen whose conduct needed reform. (Hear, hear.) He knew a medical man who, on being called in to see another's patient, denounced the treatment as radically wrong before he had heard what the treatment was. Another said to the client of a brother professional: "I should have thought that your attendant believed you to be a man with a deep pocket, and wanted to make a purse out of you." (Laughter.)

*Mr. Parker* added his meed of praise to Mr. Stanley for the care and ability he had displayed in preparing an essay which was calculated to be of great benefit to the profession generally. He deprecated laying down a hard and fast line of professional ethics.

*Mr. Tipper* was opposed to the formation of an ethical board. It was not expedient to restrict individual liberty. When the proposed code of ethics came into general operation he should expect to see the lion lie down with the lamb, and the millenium dawning. Some portions of Mr. Stanley's paper required to be answered by an essay.

*Mr. H. Stanley* urged that the importance of the subject could not be overrated. He was especially desirous of seeing the number of consultations increased, believing that, as in the sister profession, it would result in greater success. He considered that if proper attention was given to the paper it would prove more useful than many of the papers that had been read on special diseases.

The *President* hoped that Mr. Stanley's paper would be fully published in the veterinary journals, and that members would bring it under the notice of their clients, that they might see what manner of men veterinary surgeons were. Their desire was to act up to Mr. Stanley's standard. Let the public know that theirs was a noble profession, and one which aimed at relieving the sufferings of the brute creation. He feared that few members would be inclined to appeal to an ethical board, and suggested an umpire as the less objectionable alternative. He regretted that good people were so ready to bring charges of cruelty to animals for docking horses' tails, and thought that some of the heads of the profession outstepped the bounds of discretion by their frequent appearance in the law-courts. He concluded by proposing a vote of thanks to Mr. Stanley for his admirable paper.

*Mr. Over* seconded the proposition, which was carried with acclamation.

*Mr. Stanley*, in acknowledging the compliment, said he was a little disappointed at the meeting not having taken some steps for preparing a code of rules for the guidance of the profession. They might submit such a code to kindred associations. He disclaimed any intention of constituting a few members into a judicial committee.

*Mr. Greaves* understood that the essay did not contain a code of rules.

*Mr. Stanley* replied that he had prepared it in the form of a code.

*Captain Russell* proposed "That the President and two senior members of the Association do form a committee to consider the desirability of drawing up a code of rules of professional etiquette for the consideration of other associations, and report progress at the next meeting."

*Mr. H. Stanley* seconded the motion.

*Mr. Tipper* considered that if rules were framed they must be compulsory, and that compulsory rules, such as those suggested by Mr. Stanley, would break up the Association.

The proposition was negatived.

A telegram was read from Mr. Cox (5th Dragoon Guards), promising a paper at the next meeting on "Equine Asthma."

On the proposition of *Mr. Over*, seconded by *Mr. Hills*, Northampton was selected as the next place of meeting.

*Mr. Osborn Hills* exhibited a pony with deformed neck, which was generally regarded as being a case of dislocation of the third and fourth cervical vertebræ.

A vote of thanks was passed to the President, after which the members dined together, and spent a very pleasant evening.

# NORTH OF ENGLAND VETERINARY MEDICAL ASSOCIATION.

The usual quarterly meeting of this Association was held at the County Hotel, Newcastle-on-Tyne, on Friday, August 31st, the President, D. M'Gregor, Esq., Beddington, in the chair.

*Present.*—Messrs. Dudgeon (Sunderland), C. Hunting (South Hetton), Blench (Thornley), Farrow (Durham), Wheatley (South Shields), Nesbit (Fence Houses), Elphick, C. Stephenson, A. Hunter, Wm. Hunter Wilson, and the Secretary, Newcastle-on-Tyne. Present as visitors—Messrs. Hurrell (Southminster), Stevenson (Sunderland), and Stewart, Vet. Student. Letters were received from several members of the Association regretting their inability to attend.

The minutes of the previous meeting having been read and confirmed, the adjourned discussion on Pink-eye (which formed the subject of the President's address delivered at last meeting) was resumed by *Mr. Hunting*, who said that it was no new disease, but had existed in this and other countries for centuries, and had at different times been described by various authors, notably by French and Italian veterinarians, and also in an edition of "White's Farriery," published by the late Mr. Charles Spooner fifty years ago, from which work Mr. Hunting read an extract most accurately describing the disease as seen in this city during the last two years. Personally, he remembered the disease as far back as the year 1836, at which time the symptoms were identical with those shown in the recent outbreak, but the mortality was much greater, the death-rate being in many places as high as 42 per cent. Mr. Hunting would not propose to ask the Legislature to place this disease under the workings of the Contagious Diseases (Animals) Act, as by doing so the loss to trade would be ten-fold greater than by the disease; and, while fully admittting that it is capable of being transmitted from a diseased to a healthy animal, believed that it frequently arose spontaneously, and he cited several cases as bearing out this view; and he believed that the rapid spread of the disease and the severity of the symptoms was chiefly governed by atmospheric causes. He also thought the vulgar term "pink-eye" was greatly misleading; it might do for Yankee clap-trap, but was derogatory for respectable veterinarians to use, being a meaningless term.

*Mr. C. Stephenson* was of opinion that the disease is highly contagious and infectious in its nature, and that it does not arise spontaneously; and believed that the recent outbreak was due to the importation of foreign ponies, and thought it advisable for the Legislature to interfere with a view of preventing its re-introduction, and also to provide for the inspection of horse-marts and dealers' stables; and he thought by a proper system

of inspection that the disease would be greatly limited. Our duty as veterinary surgeons is to find out the origin of and the laws which govern all infectious diseases, so that we may be prepared to meet and deal with future outbreaks in a proper manner.

*Mr. Dudgeon* was of opinion that it does not arise spontaneously. He remembered the outbreak of 1865, when the symptoms were similar to those in the recent outbreak, but not in so virulent a form, and he thought that (however desirable it might be to impose restrictions) the time had hardly arrived to ask the legislature to interfere.

*Mr. Elphick* did not believe in the sporadic origin of the disease, and cited several instances that had come under his notice of outbreaks of the disease following on the track of the movements of the afore-mentioned foreign ponies. He also narrated the cases of two stallions in this neighbourhood which had suffered from the disease in the winter, and to all appearances recovered. In the spring, however, nearly all mares served by these stallions contracted the disease, although at the time there was no external evidence to show that the horses were themselves affected, and he thought it extremely desirable that we should endeavour to discover how long an animal was capable of propagating the disease after it had apparently recovered.

*Mr. Hurrell* stated that a peculiarity of the disease in Essex was that it rendered the animals attacked subject to periodic ophthalmia, which invariably ended in the animal becoming blind.

*Mr. Dudgeon* drew the attention of the meeting to the recent prosecutions for docking horses, and said he would like to take the opinion of the members present as to whether it was desirable to perform the operation. His own opinion was that there were cases in which it was necessary, and he trusted that the recent convictions would not lead to the prosecution of veterinary surgeons who performed the operation in cases where it was for the comfort of the animals or the safety of persons in charge of them. Most of the members present spoke on the subject, and were unanimously of opinion that in most cases docking was unnecessary, but that there were cases where it was advisable, and expressed their determination of using their own discretion as to whether to perform the operation or not.

*Mr. Stephenson* said he did not believe in the indiscriminate docking of horses, but believed it to be necessary occasionally, and mentioned that he had recently seen a cab-horse whose tail was sore and bleeding from constant friction with the dashboard of the cab, and he thought this was one of the cases where docking was necessary both for the comfort of the horse and the safety of the persons riding in the vehicle. He believed that docking skilfully performed was not a very painful operation, and proposed the following resolution, which was seconded by Mr. Hunter, and unanimously carried, viz. :—

"That we, the members of the North of England Veterinary

Medical Association are of opinion that indiscriminate docking of horses is unnecessary and cruel, but that there are cases in which veterinary surgeons are perfectly justified in performing the operation."

*The President* then narrated the following interesting case of "Inversion of the Bladder."

The subject was a mare, 6 years old, which had foaled a few days previous to my being called in on June 24th; was said to have great difficulty in micturating On examining per vaginam, I found what I supposed to be a tumour about the size of a goose's egg, hard, and apparently firmly attached to the floor of the vagina, posterior to the meatus urinarius. The mare had much and frequent straining, the urine passed in small quantities after each exertion and had a milky appearance, but between the strainings trickled from her involuntarily, scalding the thighs and legs in its course.

I gave a diuretic, and ordered nursing and caretaking, in not allowing her to be exposed to rain or cold. The general health and appetite was good, and the foal seemed thriving. I did not see her again until the 27th, when the supposed tumour was much longer, larger, and softer to the feel, becoming pedunculated, and so far projecting towards the vulva that it could be plainly seen.

After careful manipulation I came to the conclusion that it was inverted bladder, but as I had never read or heard of such a case (not having seen the article in the March number of the *Veterinary Journal*—in fact, it was only two days ago that I came across it), I thought it better to have some further advice. On the 28th I took Mr. Hunting to see the case, and told him what I suspected it to be, but he also had never seen or heard of the like.

As the owner of the mare had never employed me previously, I told him that I did not care about operating by myself, and referred him to several veterinary surgeons, any of whom I would be glad to meet.

He chose Mr. Elphick, who wired me to say he would meet me on the 30th. We visited the mare together on that morning, and after a long and careful examination of the tumour, which was then projecting outside the vulva, Mr. Elphick came to the same conclusion as myself. We then thought it expedient to try returning the organ. The means used was a round-headed walking-stick, protected by a soft rag well oiled. The fundus of the bladder was first carefully reverted by the hand, until a pocket was made, into which the head of stick was introduced, and gentle but firm pressure applied upwards and inwards, Mr. Elphick keeping a firm grasp of the neck of bladder with the left hand, guiding the direction of the stick through the meatus urinarius. In about five or six minutes the whole was returned, and very satisfactorily. This all took place in the field where

the mare and foal were grazing. We then had her walked into a loose box, the stick still inserted and held by the hand for fear of a return of the animal straining. The mare was tied up by the head, and an attendant stationed holding the inserted stick until further orders. Being much interested in the case, I made two other visits the same day, at each visit injecting a little Opii Tr. and Plumbi Acet. in warm water. Urine was passed frequently, and a good deal of straining occasionally, but the pulse was fairly good, and appetite good.

July 1st.—Mare had done well during the night. Longer intervals between urinating, and straining much less. Threw up another injection into bladder, and still continued the plug in bladder. Second visit.—Withdrew stick, and stayed in attendance for an hour, with hand over neck of bladder frequently, to test if any likelihood of a return. As there was none during the hour, I decided to leave her free.

2nd.—No tendency of returning, and the body of bladder, which had been enlarged and thickened from inflammation, now felt softer and much less, micturating more naturally, and little straining. In fact, doing very well.

4th.—Mare looked well and hearty, turned both it and the foal out to grass during the day, but to be brought in at night and in case of rain.

I visited my patient several times after this, but there was no necessity to do anything, as she gradually regained the perfect use of the bladder, and is at this date working daily.

In commenting on this very peculiar case, and after inquiries of owner, I learned that it was a first foal, and that it was a very difficult case of parturition; under this difficulty the fundus of the bladder had become inverted, at first slightly, and had ultimately been forced into the meatus, and when first I saw it the fundus was only partially through the meatus, forming the hard tumour-like structure described; but which in the course of a few days, in consequence of the continued straining, gradually became completely inverted.

A hearty vote of thanks to the President for his interesting communication and for occupying the chair brought the meeting to a close.

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## NORTH OF IRELAND VETERINARY MEDICAL SOCIETY.

The last meeting of this Society was held at the "Thistle" Hotel, Belfast, on Monday, 3rd September. The members present were Messrs. Chambers, Dunlop (Belfast), Giffen, Doris, Dunlop (Downpatrick), Kernohan, Thompson, and the Secretary. Of visitors there were Professor Walley, Messrs. Hedley, Johnston, Stringer, Sherwood, Finlay, &c.

In the absence of Mr. Simcocks (President), Mr. Doris (Vice-President), was moved to the chair.

The minutes of the previous meeting having been read and confirmed,

Professor Walley, who had kindly consented to read a paper on "Notes on Medical and Surgical Therapeutics, with especial reference to the value of Bleeding," was called upon to read it. The learned Professor on introducing the subject of his paper, said that although it touched on various diseases, he would refer only to what he considered was of practical utility, and that he would give especial consideration to venesection as a therapeutic agent.

He would first direct attention to laminitis.

*Laminal Congestion and Laminitis.*

*Subacute laminal* (*venous*) *congestion* is a frequent cause of obscure lameness in animals of a lymphatic constitution and with broad, flat feet; indeed, it is not an unfrequent cause of lameness even in animals having apparently good feet. It is usually indicated by more or less lameness and stiffness of gait—most pronounced on descending an incline—by slight elevation of temperature and tenderness on percussion with a hammer, otherwise the symptoms are negative.

*Acute laminitis* is *always* preceded by a period, more or less prolonged, of acute arterial hyperæmia, and it is this condition, not inflammation, which gives rise to the intense fever and suffering by which the affection is characterised, as proved by the fact that in all cases where an opportunity offers of making an autopsy within a period of three or four (or sometimes more) days, and exposing the laminæ by vertical or transverse section of the foot, there is an absolute absence of any inflammatory lesions. Immediately inflammatory lesions occur there is alteration in the position of the feet and in the gait, with moderation of the febrile symptoms, and in some cases fluctuation, more or less pronounced, on pressure being applied to the frog and sole.

In chronic laminitis important structural changes, with which you are well acquainted, in the laminæ, the wall and the sole result.

*Treatment.*—In subacute laminal congestion, treatment should be directed to the relief of the engorged vessels simply, by the free abstraction of blood from the solar plexus, the administration of physic and the application of hot poultices or fomentations, followed in the course of three or four days by cold applications, moderate exercise and, subsequently, by the use of irritants to the skin of the coronets; or in obstinate cases, *frog-setoning* with *coronal irritation.*

In acute laminal congestion more energetic treatment is demanded, and upon the efforts used during the first thirty-six or forty-eight hours will the subsequent course and results of the disease depend, *i.e.* whether the circulation shall be restored, or inflammatory lesions result.

*Systemically.* — Give laxatives, but avoid drastic cathartics, more especially aloes. I cannot comprehend the latter treatment, particularly where the practitioner entertains the theory that the affection is due to transmitted irritation from the stomach or intestines in consequence of continuity of structure; and most certainly I have seldom, if ever, seen any good result from it; very frequently on the contrary much harm, as it adds to the irritation, the suffering and the exhaustion. At

the very outset of the affection, systemic bleeding, bold diffusible stimulants, with opiates; forced but moderate exercise, and *hot* applications to the feet, will prevent the congestion becoming established, but once active hyperæmia exists a different plan of treatment is demanded. Systemic bleeding is not of much value here. General stimulants must be replaced by apyretics and vascular stimulants; of the former, aconite and neutral salines are superior to all others; of the latter, belladonna; the only condition to be observed in their use being their administration in *small doses oft repeated.* I need not add that restriction in dietary is a necessary adjunct to the remedial measures adopted, as is also a short bed and encouragement of recubation.

*Locally.*—Bleed freely from the radial or saphenal veins, or from the coronal plexus. As a rule, I prefer the former at the outset; the latter in the course of a day or two if the case does not yield to the other measures adopted. Under all circumstances I avoid wounding the circumflex artery of the toe, as it cannot be exposed without injuring the laminæ, and I have several times seen troublesome suppurative laminitis result. If bleeding in the foot must be adopted, it is best done at the solar plexus. Coronal arteriotomy is equally advantageous and less dangerous. The shoes should, in every case, be removed, the wall rasped down, and, if possible, the sole thinned. Following this, the feet should be enveloped in hot poultices, and bandages carried up the leg to the chest or groin, as the case may be, and kept saturated with hot water continuously for a period varying from thirty-six to sixty hours, or until relief is afforded; the object of the latter treatment being to keep the cutaneous vessels of the limb dilated, and to relieve the nervous irritation.

As soon as some signs of subsidence of the acute symptoms are observable, forced exercise, in poultices, should be enjoined, with the occasional application of a stimulant to the coronets, and, if necessary, repetition of the local bleeding. In about five or six days plain shoes may be tacked on the feet, and the amount of exercise increased, cold applications being substituted for hot; and following on this line of treatment, coronal irritation and frog-setoning if required. If fluctuation is detected, the imprisoned fluid should be liberated under antiseptic precautions.

### *Obscure Foot Lameness.*

*Obscure foot lameness,* as already indicated, is often produced by subacute laminal congestion. Equally often is it the result of navicular or pedal ostitis, and very frequently, in my opinion, this inflammation is of a rheumatic character, as the lameness is intermittent and not accompanied by any local inflammatory phenomena. Such lameness, if neglected, frequently terminates in pronounced naviculararthritis.

In its treatment, coronal stimulation, alternated with cold applications, may be tried, but as a rule the abstraction of blood from the solar plexus, followed, if necessary, by frog-setoning, and by firing—pyro-puncture in preference—round the coronet is the only method of treatment by which a permanent cure is likely to be effected.

*Quittor.*—In all obstinate cases of this disease, caries of the lateral cartilage or of the os pedis, with or without phlebitis, exists, though in some instances there is simply interstitial inflammation, with great hypertrophy and subsequent softening of the new tissue, followed by indolent abscess and sinous ulcers—anfractious tumour.

In the treatment of simple quittor, the free use of the knife, the actual or potential cautery, or setoning, may be sufficient to effect a cure, but

in old cases the wiser plan to adopt is to cut down boldly on the lateral cartilage and remove it. In the case of anfractious tumours, I have sometimes established a cure by slicing them with the actual cautery, subsequently removing the sectated parts with the scissors, and applying iodised phenol freely for a few days.

*Syndesmitis—as Result of Strain.*

*Violeut strain or injury to ligaments or tendons* leads to the same results:

1st. Acute inflammation—the extent of the inflammatory action depending upon the amount of fibre and vascular laceration which has taken place.

2nd. The formation of new interstitial tissue in a greater or lesser degree, according to the extent of inflammation which results in (*a*) *enlargement* of the organ, (*b*) *contraction* and, consequently, shortening, with more or less immobility and probably lameness.

*Contraction*, however, may take place quite independently of the aforementioned forces, particularly in the case of ligaments; thus, whenever ligaments or tendons are placed in an unduly relaxed position for lengthened periods—as in the case of over-worked cab-horses standing with their knees bent forward from exhaustion of the extensor muscles, leading to gradual contraction of the ligaments at the posterior aspect of the knee; or, as in the case of the sub-tarsal ligaments, from animals which have been subjected to hard work being allowed to stand for hours together with the toes of their shoes in holes in the stable floor.

The ultimate object to be attained in the treatment of these cases is, *firstly*, to reduce the inflammation; *secondly*, to prevent permanent contraction, immobility and deformity. The first object is attained in a variety of ways: in my experience no treatment is superior to the purely antiphlogistic, *i. e. local blood-letting*, and, best, from the solar plexus in the case of the limbs as when dealing with strain of the sesamoids, subcarpal or subtarsal ligaments, the flexor tendons, or in curb. The relief given by this operation is very great, the lameness often disappearing in a marvellously short space of time; in addition to bleeding, physic should be administered, the diet kept low, perfect rest enforced, with mechanical appliances (such as a high-heeled or patten shoe) if necessary, and hot fomentations to the part, with the frequent application of arnica and chloride of ammonium lotion; or soap and chloral hydrate liniment. The best method of applying hot water is by the use of spongiopiline, saturated with hot water and covered over with gutta-percha tissue or oiled silk.

After the reduction of the active inflammation, iodine applications, blisters, the actual cautery, or setons may be employed, and where a high-heeled shoe has been used it should be replaced by a lever shoe to prevent contraction.

In the case of strain of the subcarpal or subtarsal ligaments I have had the best results when I have put on a shoe with a lever toe and thin heels, at the same time rasping the heel of the hoof as low as possible, and firing and blistering; and, if necessary (as where two legs are strained, as not infrequently happens, and usually two opposite legs, as the off fore and near hind), slinging, or at any rate, putting the patient on a short bed, as tan, sawdust, &c.

I have recommended local bleeding only in recent cases, but within the last month I have seen rapid and great benefit result from its adoption in an old case of strain of the subtarsal ligament, the animal,

a Belgian timber horse, having been lame for several months in spite of blisters, lotions, physic, fomentations, &c. Setons are, in my experience, useless, and when contraction is very bad and the animal goes on the toe, a combination of the lever toe with high heels usually enables it to work sound and free from pain.

*Bursal Diseases.*

Acute bursitis and bursal dropsy are the most common forms of bursal disease with which we have to deal, the latter frequently, but not necessarily, being a result of the former, and it is usually tardy in formation; occasionally, however, an animal is left perfectly sound over night, and on the groom going into the stable the following morning he discovers a thoro-pin or a bog-spavin, with or without lameness. Putting rheumatism aside the lesion is usually due to a strain received in endeavouring to liberate the leg from the halter-shank or rope, or from some sudden twist of the leg in rising, or from the animal having been subjected to very severe traction work the day before, the parts being already weak.

*Treatment.*—In the acute stage of bursitis, the same treatment should be adopted as in the case of acute syndesmitis; in the sequential (dropsical) stage, firing, blistering, pressure, or setoning, may be employed; setoning, in my experience, giving by far the most satisfactory results. When these measures fail, tapping, aspiration, or evacuation may be had recourse to. The two former I have never seen do any good, as the sac—in spite of carefully-applied pressure or blister—usually refills in the course of a day or two. The last is the most effectual method of dealing with old distensions.

In the case of superficial bursæ (*bursæ mucosæ*), no hesitation need be felt in freely evacuating the sac by a bold incision at its lowest part, and treating as a common wound. With vaginal bursæ the case is different, inasmuch as considerable general fever and local inflammation may follow the operation. This may be obviated by making a bold incision and immediately injecting the sac with a tolerably strong solution of iodized phenol in glycerine, repeating the injection the following day, or two days, with a weaker solution. If the pain and fever are great, anodyne applications and fomentations may be employed. The first year I commenced my professional career I evacuated the synovia from a distended patellar bursa in the manner indicated, with the happiest results, the animal walking home a distance of seven miles. The sac was as large as a child's body, and extended from the stifle to the hock. The animal (a colt) had been under the treatment of an empiric for 15 months.

*Skin Diseases.*

Probably there is no class of diseases with which the veterinary surgeon has to deal so little understood as these, or in the treatment of which he is so frequently baffled.

I shall not attempt here to deal with the therapeutics of skin affections in detail, nor, with the object of considering their treatment, shall I give an extended classification. For all practical purposes we may arrange them under a few heads, viz., pruritic, papular, pustular, eczematous, parasitic, infective and specific.

*Pruritus* is usually a symptom only, *i,e.*, it is an accompaniment of, and is caused by, local irritation of some kind. Occasionally, however, its actual cause cannot be demonstrated, and it exists quite independently of any actual organic skin affection. In these circumstances we are apt to refer it to some constitutional derangement,

consequently we bleed, physic, give alteratives, put our patient on low diet, and apply topical sedatives without any benefit. One or two applications of tincture iodine will effectually remove the irritation, showing that it is of local origin and probably due to some deranged condition of the cutaneous nerves.

*Papular eruptions* may arise independently of, or be associated with, other diseased conditions. They may be local (glandular or vascular) in their origin, or due to some gastro-intestinal derangement, or probably to hepatic disease; in some cases they are probably due to a deteriorated condition of the blood itself, as would seem to be indicated by the fact that such symptoms are most largely seen in weakly or debilitated, or in grossly fat animals.

*Treatment.*—In the great majority of cases in animals in high condition a dose of purgative medicine, followed by alteratives and a change in diet is sufficient to effect a cure; in more obstinate cases no treatment short of a prolonged administration of arsenic, combined with potassic iodide, or alternated with it, or mercury, will be of any avail. If symptomatic of gastro-intestinal irritation, as of worms, or other organic disease, treatment must be directed to the implicated organs.

*Pustular affections* are also, as a rule, symptomatic of some other disease, rarely being of local origin, except, perhaps, in the case of that form of pustular dermatitis with which we have recently become acquainted as affecting mainly the skin of the dorsal region in the horse, and which is undoubtedly due to a localised and fixed contagium.

*Treatment.*—On the whole, the therapeutics of this form of cutaneous disease are identical with those of moist eczema, unless, indeed, the affection appears to be due, as it sometimes is, to a depraved blood crasis; in that case appropriate constitutional remedies are demanded rather than local applications. Such conditions are not infrequently seen, sometimes preceded by eczema, in the dog as a sequel of distemper or blood-poisoning. Here they are of an extreme character; and the ecthema is accompanied by irritation so intense as to cause the animal to gnaw holes in its skin, and, in spite of all treatment, the affection goes on unchecked until death ensues.

*Eczema*, for the purposes of this paper, may be divided (*a*) into *acute* and *chronic*, (*b*) *dry* and *moist*. Either or all forms may be accompanied by pruritus, especially in the dog, in which animal moist eczema very often appears spontaneously about the hind quarters, root of the tail, and back; occasionally on the plantar surface of the feet (*Eczema plantigrada*), the ears, the neck and the face. The sheep, too, is very subject to the affection (wet scald) in very wet, cold weather; as is the horse when overfed or fed on irritant food, as barley; or when the limbs are exposed to the effects of wet and cold (mud scald). In cattle enzootic attacks are seen in early summer, especially when feeding on alsike clover, and in very hot weather the condition is aggravated by the irritation of flies, cellulitis and even phlebitis not infrequently being set up, with the natural result of these processes, pyæmia. With epizootic eczema (foot-and-mouth disease) we are all too familiar; but it is rather with ordinary than with special forms of the affection we are now dealing. *Chronic Eczema*, with hypertrophy of the skin and the cutaneous glands (grease) is well known to each of you.

*Treatment.*—Constitutional treatment is undoubtedly of use in all forms of Eczema; if accompanied by fever, febrifuges are demanded; if due to an altered blood crasis, the object we must have in view must be to restore the vital fluid to a healthy condition by the administration of appropriate remedies, such as mercurials if the condition is sthenic;

iron compounds and arsenic, with quinine, if anæmia and debility exist. *Locally.*—In the moist form, no application is of so much use as a lotion composed of alum, borax, and glycerine, with or without carbolic acid; as assisting in the treatment, removal of the hair or wool, where necessary; the absorption of the discharges by absorbent material, such as tow; and the prevention of injury by gnawing or scratching must be thought of. An application of nitrate of silver, or, in very moist eruptions, dry alum and charcoal, powdered, is extremely beneficial. In the dry form, salicylic ointment, an ointment composed of Ungt. Picis Co., vaseline and oxide of zinc; or weak mercurial preparations are more beneficial. In *chronic Eczema* of a dry form, a strong solution of iodised phenol in glycerine is the most serviceable; in the wet form, a paste of alum, acetum plumbi, and carbolic acid.

*Parasitic* affections are more numerous, as they are, very frequently, more difficult to treat than idiopathic skin-diseases. The parasite may be vegetable or animal, the former being familiar to you as the *Ringworm*, the latter as *Mange*, *Scab*, *Follicular Mange*, etc., and I suppose every one of you will have your favourite remedy for these different affections; their utility I am not going to question, but shall merely point out one or two rules in the *therapeutics* of these affections, by which I think we should be guided. The first is to continue treatment until all signs of active disease have passed off; the second is to watch jealously for a recurrence of the symptoms; the third, not to confine our treatment to too circumscribed an area. I need not say that local treatment alone is demanded in these cases, and of all the topical applications none are superior to tarry compounds combined with alkalies. Other rules in all bad cases of Mange must also be followed, viz. dress from the tip of the ears to the coronets, let the applications be of sufficient strength as to remove the epidermis in flakes (blister, if you like), and allow it to remain in contact with the skin for a period of from twenty-four to forty-eight hours before removing it with soda, soap and hot water. In follicular Mange of either type, cut clean through the affected follicles with the lancet, and apply iodised phenol with glycerine.

In Ringworm the same application is specific, as is also Ungt. Hydrar. Biniodidi.

*Infective inflammations* are familiar to us as Erysipelas, Carbuncle, Sphacelus, &c., and the inoculation lesions of Pleuro-pneumonia. In their *treatment* several important rules must be followed, viz. protect the parts from the atmosphere; prevent the introduction of bacteria—in other words, use pastes of medicated starch or fuller's earth, or paint; prevent the spread of the inflammation by drawing a circle around the affected parts with pure carbolic acid, strong tincture of iodine, or nitrate of silver; ascepticise and render innocuous the products of inflammation by irrigation with iodine and carbolic preparations, solutions of tannic acid, permanganate of potash or ferric perchloride.

*Specific localised* inflammations, such as rodent ulcer or those associated with osteo-sarcoma and tubercle, are best dealt with as follows:—Firstly, by thorough removal of all diseased parts with the knife and scraping the subjacent tissues; secondly, by cauterization of the exposed tissues; thirdly, the removal of all the tissue so destroyed by the use of poultices, followed by the free application of iodised phenol.

### *Rheumatism: Acute and Subacute.*

Without attempting to clear up the long-disputed question as to the

pathology of this disease, I would at once direct your attention to the benefit to be derived in its treatment by the use of a combination of anti-rheumatics. Some little time after the introduction of salicylic acid and its compounds by Dr. Maclagan as a remedy in rheumatism I published the result of the treatment of a subacute case of the disease in a horse by salicylate of soda. The case was an encouraging one, and I have since lost no opportunity of testing the utility of the drug, with the result that I have been uniformly successful, not only in relieving symptoms, but in warding off important complications and sequelæ; and I would strongly advise that in all cases of rheumatism no time be wasted in the adoption of so-called antiphlogistic or febrifuge treatment as such, but at once begin the administration of large doses of salicylate of soda or potash, in conjunction with potassic iodide and sulphate of magnesia, or small doses of aloes; alternating these with calomel or hydrargyrum c. creta, and moderating the doses when constitutional symptoms of the effects of the drugs are manifested. When local applications, as to joints or bursæ, are required, nothing gives so much relief as iodised soap liniment freely applied.

The withdrawal of blood, except from the coronal or solar-plexus in rheumatic laminitis in the horse or ox, has no effect in the moderation of the urgent symptoms of the disease.

*Ophthalmia*, whether external or internal, is a disease of great importance to the veterinary surgeon; not from any direct fatality by which it is accompanied, but, in the case of the horse, by reason of the great reduction of value it produces by its results. Usually attributed to the effects of cold or chill acting upon organs predisposed, hereditarily or otherwise, to inflammation, there can be no doubt that acute glaucoma, at least in the dog, is occasionally produced by fright or anxiety, and in such cases destruction of the delicate structures of the eye is very likely to result.

In corneal opacity, powdered carbonate of ammonia or sulphate of zinc lotion may be used.

Whether we are dealing with external or internal inflammation, no course of treatment gives such immediate relief as venesection from the angular vein, with the application of anodyne fomentations and belladonna, or arnica, collyria, and the internal administration of mercurials; combining these, when corneal or lenticular opacity arises, or when large quantities of lymph are thrown out into the anterior chamber, with potassic iodide; with the free use of belladonna or atropine when adhesion of the iris, either at its pupillary margins or elsewhere, takes place. The prolonged use of atropine will bring about corneal opacity, hence it must not be pushed too far. Potassic iodide, alternated with mercurials and associated with local irritation, will frequently lead to the removal of opacity in the early stages of cataract.

The value of medicated inhalation in *Acute Nasal Catarrh*, *Rhinorrhœa Ozena*, and *Bronchorrhœa* is, I think, little known, or if known, its employment is often neglected.

The constitutional treatment of any one of these affections is a matter of secondary importance. Certainly much good may result from the use of febrifuges in acute catarrh; of astringents, such as arsenic, iron, copper and iodine, in rhinorrhœa and bronchorrhœa; and camphor monobromide or potassic bromide, in the last disease, where the cough is troublesome; greater good, however, is effected by the use of local and direct remedies.

In acute catarrh the inhalation of sulphurous acid gas frequently gives good results, but much greater good is, as a rule, effected by the medica-

tion of steam with terebene or oleum juniperus, creosote, camphor, and eucalyptus globulus oil, or balsam of capivi. When the slightest tendency to chronicity is evidenced, these inhalations should be replaced by, or at least alternated with, iodine or iodized phenol; the latter being especially indicated where the discharges are accompanied by ozena, or where ozena exists independent of catarrh—intra-nasal injections of iodine may also be tried. Of equal value are iodine and carbolic inhalations in bronchorrhœa, and in each case we have a powerful adjunct in counter-irritation, as the application of biniodide of mercury ointment to the nasal region in rhinorrhœa, and of iodine or cantharides blister to the thoracic and tracheal regions in bronchorrhœa.

If pharyngitis is an accompaniment of catarrh, belladonna and chlorate of potash are indicated; if laryngitis, aconite and nitrate of potash.

*Neuro-spinal Lesions of Indeterminate Origin, i.e., Chorea, Immobilité, Tetanus, Cramp.*

The first of these affections, as you are aware, is most usually seen in the dog, and the second in the horse, while the latter two are common to all animals.

Chorea and immobilitié may result from systemic disorder, as distemper in the dog or influenza in the horse (leading to spinal softening, effusion, thrombosis, or embolism), to some local lesion, such as concussion or violent strain; or to idiopathic spinitis. Both conditions have a tendency when once established to become permanent, and both are aggravated by adverse conditions; while chorea, of a most exaggerated type, is occasionally produced by some sudden fright or violent emotion.

*Treatment.*—In the early stages of these affections the greatest good results from the application of stimulating anodyne liniment and hot fomentations along the whole course of the spine, conjoined with the administration of chloral hydrate and repeated small doses of belladonna extract and succus conii, the influence of the two latter agents being sometimes magical in the case of immobilitie. A very useful adjunct is the use of prussic acid enemas.

The administration of belladonna must be persevered with until the acute symptoms have passed off, or until the spinal hyperæmia by which they are caused, and which is indicated by retinal injections, is overcome. If the belladonna gives no relief, large doses of arsenic may be substituted, with potassic bromide as a nerve-depressant, or this agent and chloral hydrate. If the symptoms (from the history and course of the case) are due to effusion, potassic iodide should be substituted for the bromide and a strong irritant applied along the region of the spine.

The pathology of tetanus is still an unsettled question. One thing I have invariably found on *post-mortem* examination, viz. intense capillary hyperæmia of the spinal cord and its sheath; this, in traumatic tetanus, being confined to the region of the cord corresponding to the part in which the wound is situated, *e.g.* the cervico-dorsal region in injury to the fore, the sacro-lumbar region in the hind limb. This hyperæmic condition is indicated, as in the case of acute chorea and immobilité, by retinal injection.

*In the treatment of tetanus* the same rules as those laid down in the two first affections are applicable, viz. the reduction of the hyperæmia and of the spinal irritation, the former by belladonna or atropia, the latter by hot anodyne applications to the spine and large doses of potassic bromide. The local irritation is best relieved, not, as is so frequently attempted, by the application of belladonna and allied agents, but by

the use of the potential cautery (nitrate of silver in preference), and, where necessary, making a fresh wound before applying it. The envelopment of the whole body in hot wet blankets for forty-eight or sixty hours consecutively, has a great influence in moderating the nervous irritation.

In subacute cases large doses of nux vomica or strychnine, combined with potassic bromide and forced exercise, will sometimes give very good results.

*Cramp.*—Tonic, other than tetanic, and clonic, is frequently met with in practice, and its origin is often obscure; it usually affects groups of muscles. Clonic spasm is easily combated by the local application of belladonna liniment, with friction, and hot fomentations, subcutaneous injections of atropine, or internal administration of belladonna; but tonic spasm is not so easily combated, and in one case where every other remedy failed the administration of large doses of strychnine, with forced exercise, rapidly effected a cure.

### *Purpura Hæmorrhagica.*

Two forms of this affection are met with, viz., the vascular and the serous. The two may, and usually do, co-exist, though the lesions, as a rule, of one form are more prominent than the other.

The former is due, most largely, to alterations—owing to mal-nutrition—in the capillary walls, rendering them incapable of withstanding the pressure of the blood, and thus inducing spontaneous hæmorrhage of a more or less extensive character. The latter is due, either to an excess of serous fluid in the blood or diminution in the amount of colloids, or to the presence of some matter which exerts an injurious influence upon the colloids, and thus favours effusion.

The predominance of either of the characteristics mentioned must guide us in the choice of therapeutics. At the outset, in either forms moderate purgatives, diuretics, diffusible stimulants and eliminatives are useful; subsequently, turpentine, ferric perchloride, ergot of rye and quinine or cinchona are our best remedies in the vascular form; and turpentine, with potassic iodide, in the serous form. In each, moderate doses of mercurials are indicated when icterus exists; ammonia, and brandy and whisky when the action of the heart is feeble; opium when colicky symptoms set in; powerful stimulants when the respiration becomes difficult, with nutritious matter of any easily assimilable character, as eggs, milk, blood serum, soup, stout, etc., when great debility is evidenced.

*Locally.*—Whenever the serous swellings are extensive, puncturing—not deep or extensive—scarification or draining with canulæ, may be had recourse to; with hot fomentations and the frequent application of carbolised stimulating lotions. If large wounds are made the air gains admittance and sets up cellulitis, which may be followed by diffuse gangrene. In hæmorrhagic swellings great care must be exercised in the use of the needle or lancet. Frequent applications of carbolised arnica and liquor plumbi lotion are preferable, with antiseptics and stimulants (as the creosote liniment) when sloughing takes place, and the borax and alum lotion when serous transudation is marked.

### *Bleeding.*

Had time permitted I might have materially extended the list of diseases with which I have dealt, in a general way, therapeutically. All that remains for me to do now is to make a few general remarks on the

subject of bleeding, and in doing so I shall incidentally allude to the treatment and pathology of several important affections.

It would not be profitable, either to you or to myself, to enter into a discussion as to the great change which has come over the medical mind during the last century on the subject of bleeding. Suffice it to say that, as with many other valuable systems, it was converted into a hobby in days gone by, it was over-ridden as such, and it has shared the fate of all hobbies, though in my opinion very undeservedly so.

In medical practice one can see that there is a slight revulsion of feeling as to the value of blood-letting. In veterinary practice great differences in opinion are held as to its utility, some practitioners condemning it *in toto*, others extolling it as a remedial measure; and perhaps occasionally, in their enthusiasm, falling into the errors of our forefathers by abusing it.

In medicine, as in most other things in this life, there is a medium, and I think that it is a far safer course to follow than are extremes; but, unfortunately, it occasionally happens that one or two leaders in a profession condemn customs of old-standing, and they soon find plenty of followers.

At the outset, I must most strongly assert that there is no one force in the armament of the veterinary surgeon capable of giving so much relief as blood-letting when judiciously employed. Not blindly having recourse to it in every desperate case which may come under our notice, not adding debility to debility in that great class of asthenic affections (fevers), nor expecting that by abstracting a given quantity of the vital fluid we are going to rid the system of the virus or ferment, which may be the actual cause of disease. Not draining the life blood away when its most valuable portions—white corpuscles and colloids—are being gradually abstracted from it in the form of pus, nor weakening the propelling power of the heart when extra force is required. No, gentlemen, it is as a nerve and nervo-muscular depressant, and consequently as a vascular moderator, that blood-letting is of so much value to us; not from its having any specific virtue in itself, but by its exerting a powerfully mechanical influence upon the circulation are we to expect good from this operation, and it is more to its purely mechanical effects than to any other that I wish you to direct your attention.

The moderation of blood-pressure was one of the greatest arguments of the supporters of venesection in the past. Perhaps they estimated this action too highly, and consequently fell into error. Nevertheless, and in spite of attempts which have been sometimes made to disprove any such influence, they were not altogether in error. Granted that its dynamical effect in this direction is somewhat evanescent, the relief it affords by temporarily modifying the pressure is often striking and, what is of more importance, is often lasting. Not only this, but as has been pointed out by several writers, more especially perhaps Geuzener of Halle, the moderation of this pressure, the removal of the block, and the equalisation of the circulation in commencing inflammation, favours the nutrition of the involved tissues, or even restores them to their normally nutritive state; and, as is now well known, the perversion of nutrition is the most important phenomenon attending inflammation.

It has often been asserted, again, that the withdrawal of a certain amount of blood from any particular part can have no influence on disease, as the vessels would quickly refill, but the assertion is negatived very frequently and very pronouncedly in practice, as I shall endeavour to show you. Certainly the assertion savours more of truth when applied to systemic than when applied to local bleeding. The great value of

the latter in relieving pain, in arresting inflammation, and in restoring the circulation in congestion, no person who has given it a fair and unbiassed trial can doubt. The human surgeon has a great advantage over the veterinary surgeon in this respect, as he can call into requisition the leach and the cupping-glass. We cannot do so, but we have our lancet; it is equally useful to us, and perhaps in the form of puncture and scarification often relieves tension, as in acute coronitis and periostitis, where the other means mentioned would not. It is not only by the restoration of the circulation, but the relief of tension on the tissues themselves, that we derive so much benefit from local bleeding; and bear in mind systemic venesection, as we are in the habit of calling it, *i.e.*, jugular phlebotomy, is often really local, as in brain and lung affections, and, although blood may not be drawn directly from a point, its influence for good is often very great and even lasting; indeed, nature herself sometimes acts as a phlebotomist, *e.g.*, in the spontaneous hæmorrhages which take place from the stomach of the dog (and for that matter of man) in the form of hæmoptysis in congestion of that organ; in the epistaxis which results from repletion of the vessels of the nasal chambers or from obstructive heart disease; in the hæmoptysis of pulmonary congestion and pneumonia, and in the proctorrhœa (*i.e.*, bleeding of piles) in congestion of the liver. If, however, you feel inclined to say we want more direct evidence of its value than this, I will give it you clinically, but before doing so, I will allow science to speak. I have already referred to Dr. Guezner's remark as to the effect of local bleeding on nutrition. If you turn over the pages of the *Veterinarian* for August, 1882, you will find a record of some very accurate observations made by him on the effects of local bleeding in inflammation of the web of the frog's foot. Dr. G. tells us that if inflammation is set up in this structure, the stasis may be removed and the blocked vessels emptied by applying a leech to the limb; not only so, but owing to the withdrawal of the blood from the blocked vessels hyperæmia results, and the free and rapid flow of blood sweeps away the leucocytes, clinging to the walls of the vessels, and arrests diapedesis.

I have already referred to the value of blood-letting in rheumatic laminitis, in laminal congestion, in acute laminitis, in ophthalmia, and in syndesmitis and bursitis, with which we may couple acute arthritis; it is equally valuable in acute mammitis, orchitis and glossitis; not only by the abstraction of blood systemically, or from the superficial abdominal veins in the two first affections, but by local scarification and puncture; in all, the relief afforded is due as much to the removal of tension as it is to the mere removal of blood from the engorged vessels.

It is of great use in *deep-seated acute coronitis* in the horse produced by sand-crack, or from other causes; or in the ox as the result of over-exertion on hard roads, or of foot-and-mouth disease—frequently giving instantaneous relief and warding off suppuration.

In *Phrenitis*, bold venesection will relieve when other remedies prove useless; in the premonitory, and indeed in the earliest pronounced stage of paturient apoplexy, we have no better adjunct to other treatment, but it is useless and even hurtful in the other stages; in fact, it cannot be performed.

In *Cerebral Congestion*, whether resulting from gastric derangement or any other cause, jugular venesection is indicated.

In *Lung affections* of an asthenic type bleeding is contra-indicated. In *Bronchitis* and *Broncho-pneumonia* it is only permissible when the condition of the pulse and the venous circulation is such as to indicate

absolute stasis, and even here it must be cautiously employed and associated with stimulative treatment. In the pig it is often of great value when the skin becomes blue, discoloured, and cold.

In *Pulmonary Congestion*, much as it may at first sight be thought that it is called for, it is unnecessary; bold stimulants, free supply of fresh air and flying blisters accomplish all we desire. Indeed, I have sometimes had reason to believe (in the horse at least—not so in the pig) that it has favoured cardiac valvular clotting.

In *Croupous Pneumonia* no good results in the acute stage from the adoption of venesection. I remember bleeding a powerful grey stallion, belonging to Wombwell's menagerie, three times without producing the slightest effect upon the pulse or respiration; but in the advanced stages, when the superficial veins are turgid, and when no relief is afforded by ordinary measures, the abstraction of blood, *preceded and followed by a bold stimulant and a rousing external irritant*, will sometimes snatch our patient from the jaws of death. In the great majority of cases of sthenic pneumonia, the therapeutic indications are to reduce the fever by the use of apyretics, as salines, tincture aconite, and chloral hydrate, the latter, or opium, being especially indicated when the pain is evinced by grunting and uneasy movements; to favour secretion and give a fillip to the cardiac and respiratory centres by the use of ammonia, and, if necessary, alcohol; to arrest undue hæmorrhage by the judicious use of ferric perchloride with brandy; and to moderate excessive coughing by the use of ipecacuanha, potassic bromide, or morphia: applying externally flying blisters, with hot fomentations, as the condition of the patient seems to demand.

In *Pleurisy*, general venesection is only warranted in the earliest stages; it can be of no avail when inflammatory processes are thoroughly established. In cattle I have seen it, when associated with stimulants and external irritants, give almost instantaneous relief; and both in this animal and in the horse, where the pleuritic inflammation has extended day after day in spite of all treatment, I have frequently seen the introduction of one or more setons or rowels over the region of the inflamed part arrest the disease as if by magic, and I would have you bear in mind that the usual action of such remedies, viz., suppuration, could have had no influence here, the relief being too rapid; it can only be attributed to local blood-letting and the revulsion of nervous energy.

*In heart affections* blood-letting must be very carefully had recourse to. In pericarditis I have never seen any good result from it, except in very acute sthenic cases accompanied by a hard wiry pulse, or great vascular engorgement and dyspnœa. Indeed, it may be said that venesection in cardiac affections generally is only warranted when these conditions exist, as in very many forms of heart-disease syncope immediately follows the abstraction of large, or, even very moderate, quantities of blood.

*In affections of the alimentary organs*, venesection is of great use to us. In gastric indigestion of the horse, associated with cerebral congestion, and in gastric tympany (when very frequently the administration of medicines is dangerous), and more especially when there is marked dyspnœa and great venous turgescence, it should never be neglected. Ordinarily, carbolic acid, combined or otherwise with turpentine, will afford relief, but in desperate cases the regurgitation precludes the possibility of administering medicines; and here venesection and the application of irritants to the epigastric region is all we have to rely upon, and they do not very often fail us. Paracentesis is our great sheet-

anchor in enteric tympany in the horse; unfortunately, we cannot utilise it in gastric tympany.

*In acute indigestion in the ox*, from the ingestion of large quantities of succulent grasses (grass staggers), bleeding is only demanded when the pulmonary or cerebral circulation is interfered with, a full dose of salt with whisky usually effecting our object; but in omasitis as the result of impaction, I have often thought the operation favoured the action of medicines and warded off or arrested inflammation.

*In phlegmonous enteritis in the horse* free venesection is of great value, especially if chloral hydrate and opium are administered simultaneously, and the same may be said of *acute sthenic peritonitis* in the early stages.

*In constipation of the bowels* venesection may favour the absorption of medicines, but it is not usually indicated, unless inflammation sets in. The administration of belladonna when the constipation is due to spasm, of strychnine when due to paralysis, is all that is required, with the exercise of patience. When no inflammation exists a stimulating cathartic should be administered at the outset.

*In spasmodic colic*, where the pain is desperate, when medicines give no relief, or when, indeed, they cannot be administered, bold venesection immediately reduces the spasm.

*In metritis and nephritis* I have not seen any benefit result from venesection, but in *acute uræmia* (wrongly called azoturia) in the horse, and in *parturient eclampsia* in the cow, it is of great value when judiciously employed. In the former affection it should only be had recourse to when the pulse is very strong and full, and when convulsions are threatened; then, aided by chloroform or the subcutaneous injection of atropine, we may expect, and practically do derive, much benefit from it.

I have observed that the term azoturia is a misnomer; it simply indicates that there is an excess of nitrogenous elements in the urine, thus perpetuating the vicious system adopted so largely in the nomenclature of diseases, of designating a malady according to some prominent symptom. In last month's *Veterinarian* you will find an article on this subject from the pen of Professor Axe; he, too, condemns the use of the word azoturia, but substitutes an equally meaningless one (pathologically), viz. "hæmatinuria," and he further endeavours to prove that the disease is really *albuminuria*. Now, in all the specimens of urine I have examined, as well as in those which I have submitted to Dr. Aitken for examination, no albumen has been discovered; on the contrary, uric and hippuric compounds have been present in abundance; moreover, the urine has often a distinctly ammoniacal odour. The history of these cases, their course, the symptoms and the macroscopical conditions all point to one thing, and that is a *poisoned condition of the blood itself;* whether the toxic agent is uric in character or simply results from imperfect oxidation, or accumulation of products of oxidation or of biliary matters, remains to be proved. I am of opinion that the liver is more at fault than the kidneys, seeing that, as a rule, the disease occurs in highly plethoric animals, and is associated with icterus more or less pronounced. Under these conditions eliminatives and stimulants, with stimulating cathartics, are called for, and in addition the bladder should be frequently washed out with an alkaline solution.

While venesection is indicated in *hepatic affections*, accompanied by great pain and vascular excitement, it is contra-indicated when the pulse is soft and weak, the animal's condition is low, and icterus is marked.

Lastly, venesection as a remedial measure has been much extolled in

inflammatory œdema (weed). I have put its supposed virtues in this affection to the test very frequently, and I must confess that in my hands the results following its adoption have not been encouraging. In the early stage I usually administer a bold diffusible stimulant and diuretic, apply with friction a moderately stimulating and anodyne liniment to the skin of the inside of the thigh, with hot fomentations and bandages; and as soon as possible give exercise, apply cold water, and administer potassic iodide with ammonia carbonate.

I cannot dismiss the subject of *inflammatory œdema* without briefly noticing its pathology. As in the case of acute uræmia, so in this disease, a synonym (lymphangitis) is usually employed, which is absolutely misleading. To Haycock we are indebted for the application of the term lymphangitis, but he based his theory solely on the *post-mortem* conditions observable in old-standing cases, viz., the thickened and sometimes occluded state of the lymphatic vessels, and the enlargement and induration of the glands. As well might he have said that the lymphadenitis of zymotic pleuro-pneumonia, or the lymphangitis associated with old-standing ulcers of a specific character, are the cause, not the result, of the diseases which they accompany.

Inflammatory œdema, as observed in horses, differs not from allied conditions in other animals, as, *e.g.*, the acute urticaria of man, the horse, and the dog; the blain of cattle, or acute intestinal effusion in the horse; and it is the analogue of the swelling of the limbs seen in effusive fever (pink-eye) of the latter.

The actual cause in each case is to he sought in the vital fluid, which from mal-nutrition becomes incapable of nourishing the intimate structures of the delicate coats of the capillary vessels, thus rendering them, in their turn, incapable of withstanding the pressure of an overcharged circulation.

That the blood in its altered condition has an injurious influence upon the lymphatic glands and vessels I do not deny, and that this injury is perpetuated, especially in the case of repeated attacks, is equally certain; but if the disease were primarily and simply lymphadenitis and lymphangitis, we would most certainly get some of the natural results which follow inflammation of these structures from other causes. Whether the cause of an inflammatory œdema be a ferment, as in effusive fever, a superabundance of, or an altered condition in, the blood plasma, or the presence of some deleterious material in the blood itself, is a matter of indifference; the physical results are the same, viz., an altered condition of the walls of the capillary vessels, rapid transudation of lymph, irritation of the connection tissue elements and disturbance of their nutrition, with desperate attempts on the part of the lymphatic vessels to get rid of the transuded fluid, the altered condition of this fluid giving rise, secondarily, to adenitis and to interstitial cellulitis; the latter resulting ultimately (especially after repeated attacks) in elephantiasis—a condition wrongly attributed by some veterinary authorities to organisation of the effused lymph. The localisation of the lesion in limbs, or in a particular limb, is purely accidental and is not determined by any fixed law, except, indeed, in those cases where some inherent or acquired tissue weakness exists in one or other of the extremities. That the hind legs should be most largely affected is easily explained by the unfavourable conditions as to circulation in which they are placed, and by the greater strain to which they are subjected during severe exertion, but that one limb is necessarily more liable to be attacked than another is not in accordance with my experience; and, given an inherent or pre-existent tissue defect in these organs, there is no reason

why the lesion should not be determined to the lungs or the intestines as well as to the limbs; in point of fact, inter-current colic from enteric effusion (the swelling simultaneously disappearing from the limb) is often seen. As showing the bearing of these remarks on the subject, the following cases, which recently came under my notice, may be cited. With me, inflammatory œdema is almost every year a serious item in my daily work when horses are placed upon *new hay or rye-grass*, and with this inflammatory œdema colic runs hand-in-hand. In one stable this season, four cases—in addition to several of colic—occurred. In No. 1, the lesion commenced in two limbs, and rapidly involved *all four*, the swelling being so extreme as to render destruction of the animal (an old horse) necessary; in No. 2 the lesion was localised primarily in the near fore leg; in a few days laryngeal effusion set in, and continued to an alarming degree for three days. In No. 3 the localisation of the lesion was in the near hind limb, and the horse, previously the subject of immobilité, died from tetany. No. 4 ran the usual course. All these cases were undoubtedly due to an altered condition of the blood, as the result of chemical changes going on in the hay at the time of its ingestion. Not a few cases of this description are associated with cephalic or saphenal phlebitis.

At the conclusion of Professor Walley's paper, which was listened to with well-merited attention, the discussion was spiritedly begun by Mr. Giffen, followed by Messrs. Dunlop, Kernohan, Bradshaw, Hedley, Johnston, Doris and Chambers. The Professor, in replying to the various points raised in the discussion, entered into minute and lucid explanation of these points.

A vote of thanks, moved by Mr. Chambers and seconded by Mr. Dunlop, was accorded the essayist and replied to.

*Mr. Thompson* proposed, and *Mr. Giffen* seconded, that Mr. Reary, of Newry, be admitted a member of the Society.

A vote of thanks to the Chairman concluded the business of the meeting.

H. R. Bradshaw, *Hon. Sec.*

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## PATHOLOGICAL SOCIETY OF LONDON.

J. W. Hulk, F.R.S., in the chair.

### ACUTE GASTRO-ENTERITIS IN A BEAR.

*Mr. J. Hutchinson*, jun., showed the stomach of a female bear which had been at the Zoological Gardens about four years, and died in February last after one day's illness. The stomach and upper part of the intestines were acutely inflamed; the rest of the alimentary canal was healthy. There was no food, but much exudation in the stomach and neighbouring parts of the intestines. No torulæ, sarcinæ, or micro-organisms were found, but minute quantities of round cells and fibrin, with altered blood. The uterus, bladder, and trachea showed acute catarrh. The other viscera were healthy. Probably the disease was purely

catarrhal. It was noteworthy that there was no fur whatever on the tongue.

## BONE DISEASE IN MONKEYS.

*Mr Sutton* said that the most prominent symptoms of rickets in a monkey were diminished activity, paralysis of the lower limbs, so that the animal dragged himself along, using his arms as crutches, which caused these to bend; gradually the paraplegia became complete; there was priapism and incontinence of urine and fæces. The disease ran a very rapid course, and the animals died in three or four months' time from bronchitis or broncho-pneumonia. In capuchins the chief signs were beaded ribs, softened and curved bones, enlarged epiphyses, deformed pelves; the skull was remarkably eroded, perforated, and slightly thickened; on either side of the foramen magnum was a tabetic patch. The shafts of the long bones presented a most remarkable condition, the compact tissue being split up into longitudinal lamellæ, separated by tracts of richly cellular connective tissue, which was readily seen to be continuous with the deeper layers of the periosteum; the medullary cavities were filled with dark red marrow; the epiphyses showed the condition he had already described as diffuse epiphysis, and he was satisfied that the enlarged epiphyses met with in rickets were due to the ossific matter being deposited in a diffuse and irregular manner. The paraplegia was due to compression of the spinal cord from overgrowth and softening of the vertebræ gradually encroaching upon it. The nerves also, partly from the same cause, and partly from the weight of the body, would get pinched in the intervertebral foramina, and thus he would explain the pains in the legs and urino-genital troubles which formed such prominent symtoms in the disease. Examination of the spinal cord with the microscope showed all the changes found in the cord in compression from cancer, Pott's disease, &c.

*Dr. Goodhart* asked for some information relative to the age of these monkeys. Last session Mr. Sutton had shown these changes in animals about the age of four years; and if these animals were as old, the disease was probably more allied to "late rickets" in the human subject than to ordinary rickets, and therefore must be regarded as a totally distinct disease. He also asked if lardaceous disease had been present in any of these animals.

*Mr. Sutton*, in reply, said it was exceedingly difficult to estimate the age of the monkeys; they were not born in the gardens, and the state of the epiphyses was almost the only guide, and that not a very reliable one. He had not found lardaceous disease again since the case reported last session.—*Med. Times and Gazette.*

## ROYAL VETERINARY COLLEGE.

In another part of our Journal we have given a report of the opening of the Medical Session at the Royal Veterinary College. To this we here append a list of the names of the Freshmen who have joined the classes at the First Term of the Session, 1883–4.

New students who have entered by Matriculation:

Mr. R. M. Arnold.
— R. B. Aulton.
— J. R. Bathew.
— P. G. Bond.
— R. C. Bullen.
— H. N. Carter.
— T. N. Clarke.
— J. E. Commins.
— C. E. D. Dayus.
— A. C. Elliot.
— W. H. Foot.
— W. R. Kennedy.
— H. King.
— H. Lukes
Mr. C. A. Lye.
— A. Moore.
— G. Reddish.
— W. M. Reeman.
— J. D. Roberts.
— C. Rose.
— L. Savournin.
— H. F. Sugden.
— J. P. Walter.
— F. Warren.
— J. R. Welsby.
— E. A. West.
— C. E. Williamson.
— W. T. Wilson.

Names of those who have entered by Educational Certificate:

Mr. T. V. Pettifer.
— A. Peele.
— W. A. Dellagana.
— W. H. Flook.
— R. A. Philp.
— T. H. Hobson.
Mr. W. Rattee.
— T. E. W. Lewis.
— C. H. T. Bray.
— J. H. Hine.
— T. D. Snowdon.
— G. Hurford.

Mr. W. T. Edwards.

Names of Freshmen who are eligible to compete for the Scholarship of £25 for two years:

Mr. P. G. Bond.
— H. King.
— H. Lukes.
Mr. C. A. Lye.
— J. D. Roberts.
— W. T. Wilson.

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## Veterinary Jurisprudence.

### CONVICTION FOR THF SALE OF TAINTED HORSEFLESH.

A case of some importance to the public was recently tried in Edinburgh, in which a butcher, having a shop in one of the poorest localities in the city, was charged with exposing for sale horseflesh

which was in an unsound condition, 82½ lbs. of it being found on his premises. One portion of it was hanging in the front shop among other meat, two portions were in the back shop, and another portion was in a mincing machine. The Principal of the Royal Veterinary College, Professor Walley, as a witness, testified to it being horseflesh in an unsound condition and unfit for human food, and, in reply to the Procurator Fiscal, stated what were likely to be its effects if taken as human food. This evidence was corroborated by one of his colleagues, and other evidence having been given a conviction was secured. The magistrate, in sentencing the butcher to the full penalty of £20 or sixty days' imprisonment, stated that his judgment was founded, not upon the meat being horseflesh, but upon its having been unsound and unwholesome. He also very properly remarked that the poor people in the Cowgate (where the shop was) ought to be protected in matters of this kind not less thoroughly than those who lived in better quarters.—*British Med. Journal.*

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## HEAVY FINE FOR ILLEGALLY REMOVING CATTLE.

A Carlisle cattle dealer, named William Bryson, has been fined £120 for illegally removing twenty-four cattle from Northumberland into Cumberland, in contravention of the cattle regulations.

It appeared that the defendant had a herd of Irish cattle at Stagshawbank Fair on the 27th ult., and having twenty-four unsold at the close of the market he sent a drover with them across the county border into Cumberland. The man drove them along the road during the night, but as soon as he reached Low Row, where he attempted to truck them by railway for Carlisle, the county police arrested him and impounded the cattle. Besides the fine of £5 for each animal inflicted on the owner the drover was fined £2.

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## A CATTLE SALESMAN HEAVILY FINED.

At the Wigton (Cumberland) Petty Sessions, recently held, Mr. John Cairns, of Winkston, Peebles, a cattle salesman, was charged with having altered a declaration as to the removal of some sheep, with intent to evade the regulations of the local authority of Cumberland. The magistrates imposed the full penalty of £20 and costs.

## THE MAYER FUND.

*Contributions already received.*

| | £ | *s.* | *d* |
|---|---|---|---|
| J. Roalfe Cox | 10 | 0 | 0 |
| Sir F. Fitzwygram, Bart. | 5 | 0 | 0 |
| Professor Brown | 5 | 0 | 0 |
| Professor Simonds | 5 | 0 | 0 |
| Thomas Greaves | 3 | 3 | 0 |
| G. Balls and Son | 3 | 0 | 0 |
| Messrs. Lepper | 2 | 2 | 0 |
| J. Freeman | 1 | 1 | 0 |
| E. Burnside | 1 | 1 | 0 |
| S. W. Withers | 1 | 1 | 0 |
| H. Paradise | 1 | 1 | 0 |
| A. Stainton | 0 | 10 | 6 |

We hope to be able in our next issue to add a long list of donations to the above.

## MISCELLANEA.

### THE FARMER'S ALLIANCE AND CATTLE DISEASE.

At a well-attended meeting of the Executive Committee of the Farmer's Alliance, held on Monday, September 23rd, at Palace Chambers, Westminster, the present alarming outbreak of foot-and-mouth disease was considered.

*Mr. Rowlandson* (Yorkshire) moved, *Mr. Parsons* (Hants) seconded, and it was unanimously agreed—

"That the present alarming outbreak and spread of foot-and-mouth disease throughout the United Kingdom proves the uselessness of the present vexatious internal regulations, and that until our ports are closed against animals from any foreign country or British colony, except from those which are known to be free from contagious disease, the stock owners of this country would prefer to have no restrictions upon the movement of animals beyond a penalty upon any person removing from any place any animal which is affected with contagious disease or which has been in contact with another animal so affected."

It was moved by *Mr. Clarke* (Hove, Sussex), seconded by *Mr. Chapman* (Ware, Herts), and unanimously agreed—

"That, as the present Act has proved a failure, both in preventing the introduction of disease and dealing with the recent outbreak, the Committee would urge upon Government the absolute necessity of bringing in a bill early next Session for the amendment of the Act."

### CHOLERA AND THE LOWER ANIMALS.

A few months ago, when a scare prevailed, as it was supposed a visitation of cholera in England was imminent, we were told the approach

of the epidemic might be expected with certainty, because, as was asserted, swallows kept away from our shores to an unusual extent this summer, and because, as was also asserted, house flies were curiously scarce. Why swallows and house flies especially should be affected by the cholera I do not pretend to know, but happily the forebodings proved incorrect, and the dread disease did not visit England.

In India, however, in the Bombay Presidency, several districts have suffered more or less severely from outbreaks of cholera. In Ahmedebad three Europeans and a considerable number of natives were carried off by the disease within a few days towards the end of August, while at the same time a fatal epidemic appears to have broken out among the dogs and poultry in the station. By last mail I received a letter from Ahmedebad, in which my correspondent, after describing the outbreak of cholera, says :—"At the same time a strange mortality occurred among the poultry. Among my own fowls some of my hens died, and all were sick, and most of the ducks died; but the epidemic seems now (17th September) to be over, and the poor things are in various stages of recovery. The dogs of the station also have had great sickness among them. Our "Bobby" was for two days in hospital with the farrier sergeant, but the dog is nearly all right now. There have also been numbers of mad dogs about. Several have been shot, but not before they had bitten some of the officer's dogs, which, of course, had to be destroyed. There has been quite a scare about the mad dogs, but we have had mercifully removed from us the still more serious danger of cholera, and are thankful. The attendant illnesses of the lower creation is, however, a curious fact. Some persons believe it has a close connection with the cholera."

It seems to me the above is worth noting. I have often heard it said in Ireland during outbreaks of fever that it was a good sign when the domestic animals in an infected neighbourhood began to sicken; better still if one or two of them died, as it showed the sickness was being carried off from the human beings into the beasts.—"The Stork."—*Land and Water.*

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## OBITUARY.

We regret to have to record the death of Mr. Chas. T. Shorten, M.R.C.V.S., formerly of Ipswich, which took place at Hetley Road, London, on October 18th, in the 62nd year of his age. Mr. Shorten, after practising at Ipswich for several years and enjoying the friendship and respect of a large circle of supporters and others, left the town for Germany and resided for some time at Breslau, in Silesia, where he conducted an extensive artificial manure manufactory, and agricultural implement depôt. Returning to England he again engaged in veterinary practice, and was, on the breaking out of cattle plague, appointed an inspector under the Privy Council, in which department he was engaged at the ports of Hull, Goole, Grimbsy, and afterwards at Newcastle-on-Tyne, since which he had retired from the profession. He obtained his diploma April 30th, 1842, and was elected a Vice-President of the Royal College of Veterinary Surgeons in 1856.

We have also the painful duty of recording the death, on the 16th October, of Mr. Thomas Taylor, F.R.C.V.S., of Grosvenor Street, Oxford Street, Manchester, in his 46th year.

THE

# VETERINARIAN.

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## Communications and Cases.

### THE OPENING OF THE SESSION AT THE SCOTCH VETERINARY COLLEGES.

Wednesday, October 24th, will be marked as a "red letter day" in the history of Veterinary Science in Scotland, for not only were the several colleges opened for the Medical Session, but at the Clyde Street School the statue of the late Professor Dick was unveiled and a Testimonial presented to Professor Walley, and at the so-designated New Edinburgh College the newly erected buildings were likewise appropriated with befitting formality to the several uses for which they had been designed. A very lengthy account of the proceedings at this College has been specially placed at our disposal by Professor Williams, in addition to which we are indebted to Professor Walley and Professor M'Call for full particulars of the inauguration of the session at their respective Institutions.

These reports, together with those of the Veterinary Associations, have compelled us to alter the arrangement of our Journal, and withhold Cases and Pathological Communications, Extracts, &c., until the publication of our New-Year's number.

In our last issue we could only note the erection of a statue to the memory of the late Professor Dick, we are now enable to lay before our readers the full particulars connected with the ceremony of unveiling the statue.

### THE EDINBURGH COLLEGE.

On Wednesday afternoon the Lord Provost of Edinburgh performed the ceremony of unveiling the statue of the late Professor Dick in the quadrangle of the Dick Royal Veterinary College, Clyde Street. There was a very large attendance, among those present being—the Marquis of Lothian, Sir James Gibson-Craig, Bart.; Principal Sir Alexander

Grant, Bart.; Major-General Anderson, C.B.; Colonel Gillon of Wallhouse, Mr. Duncan M'Laren, Mr. Mylne, Niddrie Mains; Mr. F. N. Menzies, secretary to the Highland Society; Mr. Melvin, Bonnington; Professor Turner, Edinburgh; Dr. Littlejohn, Professor Hallen, Principal Williams, Dr. Fleming, London; Dr. McKendrick, Glasgow; Mr. Finlay Dun, &c.

*Mr. Harris*, depute Town Clerk, intimated apologies for absence from the Duke of Montrose, Sir Walter Elliott, Mr. P. M'Lagan, M.P.; Major-General Fitzwygram, Professor Maclagan, Professor Balfour, Major Bailie Hamilton, the Honorable E. D. Horne, Sir Wyndham Anstruther, and a number of others.

The *Lord Provost* then said it was ninety years since their friend Professor Dick, to whom they had met to do honour, was born in the Whitehorse Close of the Canongate. His parents did what every Scottish parent worthy of the name had done for the last three hundred years—gave their son a good education. After receiving the ordinary school education he went to the University, where he attended lectures on anatomy and chemistry. At that time there was no veterinary college in Scotland, so having, very naturally—his father being a farrier and smith—conceived a regard for horses and dogs, he went about 1817 in pursuit of further knowledge of those interesting animals to London, where there was a veterinary college, and continued there for a year or two, when he got his diploma. In 1820 Professor Dick began his lectures in Edinburgh, and, through the kindness of Professor Chiene, he (the Lord Provost) was able to show them how that Veterinary College began. His Lordship then read the first hand-bill issued announcing Professor Dick's lectures, which were commenced in the Calton Convening rooms, and went on to say that from 1823 they might perhaps date the foundation of the College, because in that year Professor Dick got the patronage of the Highland and Agricultural Society of Scotland. In 1837 he received Royal recognition, through the late Lord Albemarle, then Master of the Horse. From that time onward, for the next thirty years, Professor Dick's course was a uniform success, his knowledge, his practice, and his usefulness increasing year by year. (Hear, hear.) During that time Professor Dick was able, through his industry and talent, to spend £10,000 of his own money in founding this college. (Hear, hear.) He undertook the responsibility of procuring lectures on all the kindred subjects necessary for obtaining a proper knowledge of the art, and he left behind him his whole fortune—only subject to the liferent of his venerable sister, who had but parted with life within a very short time, for the benefit of this institution. (Hear, hear.) Professor Dick was a strong man, an industrious man, a man who knew the value of work, and a man of whom they had had many types, his lordship was glad to say, in Scotland, one of those men who had done the world good service. (Applause.) Since 1866, when the Professor died, the College had been carried on with somewhat varying success. Principal Walley entered upon his duties in 1874 with 36 students, but he (the Lord Provost) was proud to say, both on account of the Principal and on account of the College, that the 36 was now 136. (Hear, hear.) When Professor Dick was about sixty years of age Mr. Hall Maxwell, then Secretary of the Highland Society, pointed out to the Government that he, single-handed, had organised the whole staff of lecturers on his own responsibility, and established classes for anatomy, physiology, materia medica, and chemistry, and that he had carried on the institution in such a successful manner that the Highland Society were fully sensible of the benefit he had done to the city, and considered that no other institution of a similar character was then required. During

Professor Dick's lifetime, and since his death, the college had educated upwards of 1,000 veterinary surgeons. It numbered among its graduates those occupying the highest and most responsible positions in the profession, both at home and abroad, including the present and the late Principal Veterinary Surgeon to the Army, the present President of the Royal College of Veterinary Surgeons and his two predecessors in office, as also the Principals of the London, Glasgow, New Edinburgh, Montreal, and Ontario Veterinary College. His lordship trusted the College would go on increasing in renown and usefulness for many generations, and concluded by asking the sculptor to unveil the statue. This Mr. Rhind did amid loud applause.

*The Marquis of Lothian* said it gave him the greatest pleasure to be present at the unveiling of the statue of so distinguished a man as Professor Dick. He came there, as they all knew, not only on his own behalf, but as the representative of the Highland Society, which had always taken a great interest in veterinary science. (Applause.) He thought it was very fortunate that they had had the Lord Provost to perform the ceremony of the day. It was one of his predecessors, Sir William Arbuthnot, who in 1816 first suggested the foundation of a chair including that of veterinary science in connection with the University of Edinburgh, and it was very appropriate that his representative in the same office should unveil the statue of the first eminent professor of that science in this city. (Applause.) The Town Council of that time did not agree to the suggestion of the then Lord Provost, but the Highland Society, especially since 1823, had done all in its power to encourage it, and he wished to express their great pleasure in seeing so good a statue of a man so eminent in his profession, and their gratitude to his memory for all that he had done. It must be a great encouragement to all those who were attending the College to think that those who preceded them had always led the van in the veterinary profession, and he thought that the example now before them in seeing the public estimation in which Professor Dick was held should induce them to go on increasing their knowledge of this most interesting science. He thanked the Lord Provost for having invited the Society there, and for his expression of appreciation of Professor Dick. He had just come from the other College, which had been opened to-day, and he had heard Principal Williams express his great appreciation for the talents and memory of Professor Dick as the founder of the veterinary science in Scotland. A greater compliment could not be paid to a man than to be able to say that those who had been under him had taken the very highest position in the profession to which he gave so much attention. (Applause.)

*Dr. Fleming*, London, said he did not come there to speak, but to worship; but, nevertheless, as a student of the College twenty-eight or thirty years ago, and in the name of many of the students of that time, who were now in the army, and who wished to be represented at the unveiling of the statue of their revered teacher, he was glad to have the opportunity of saying how high Professor Dick's memory was held among them. His students were in every part of the world, and they always admired Professor Dick for his manly and unflinching courage, and his rectitude of character.

*Mr. Mylne*, Niddrie Mains, expressed on behalf of the landed interests and stockowners the unbounded confidence they had in Professor Dick for his straightforward honesty and independence of character.

*Professor Hallen*, who was one of Professor Dick's students, and succeeded him as Principal of the College, also said a few words with regard to him.

*Principal Walley* took notice of the fact that it appeared from what

the Lord Provost said that he was the only representative of an English college who was at the head of any veterinary institution in the country, and said he supposed he must look upon himself as a thorn amongst roses. This he could claim, however, that he was of the same *alma mater* as Professor Dick, for he was a student of the same college in London. And he would claim that from the moment that he put his foot inside this College and filled the position which Professor Dick once occupied, he made up his mind that everything he could do would be done to further its interests. (Applause.)

*Bailie Cranston*, as representing the trustees of the College, thanked the committee and the subscribers for the statue, and said they felt perfectly satisfied that the institution would go on prospering. A considerable sum of money had been left to them to build a new college, to give the professors better salaries, and to enable them to cheapen the students' fees.

*Professor Turner*, in name of Miss Dick's trustees, said they wished Miss Dick had lived to be present to see how green her brother's memory was in the hearts of his many students. The noble Marquis had referred to the alliance which at one time it was contemplated might have taken place between the University and the veterinary profession, and said the late Miss Dick in her settlement obviously felt something of that kind might be considered, because she had left her means partly for the good of the veterinary profession and partly for the good of the University, and it might in time bring an association closer than at present existed between the profession of veterinary medicine and the University of Edinburgh.

*Principal Williams* was asked to say a few words, and he was received with great applause. He said he stood on these steps once more where he never thought he would have done, but he did so out of respect to the memory of Professor Dick.

*Mr. Duncan M'Laren* referred to his association with Professor Dick in the Town Council some thirty years ago, and moved a vote of thanks to Mr. Rhind, the sculptor, for the manner in which he had executed the statue. He had made a likeness which everyone who knew Professor Dick would at once recognise.

*Mr. Finlay Dun* proposed a vote of thanks to the committee, and alluded briefly to the great work of Professor Dick.

*Mr. Melvin*, Bonnington, replied. He said Professor Dick was the first in Scotland to introduce humane treatment for all living creatures, and it was from his exertions and education that they now saw the live stock of the country treated in a rational manner.

*Sir Alexander Grant* proposed a vote of thanks to the Lord Provost.

*His Lordship*, in acknowledging the compliment, said that nothing in the day's proceedings had pleased him so much as the appearance of Professor Williams. (Hear, hear.) That the two colleges should be carried on with a generous rivalry and proper emulation with each other was, he thought, a most desirable thing both for the colleges themselves and the cause of veterinary surgery. He believed that both would thrive all the better because there were two. (Hear, hear, and applause.)

The proceedings then terminated.

The statue consists of a figure of Professor Dick sitting in the professorial chair. His left arm is hanging over the back of the chair, the right arm being extended forward from the body, and holding in the hand the fetlock bone of a horse as illustrative of some point on which the Professor is supposed to be earnestly speaking. Despite the fact that the

sculptor had only one or two photographs to work from, and those not very well suited for his purpose, a most vivid likeness has been produced, the bold and firm modelling of the expressive features and large massive head at once conveying the independence and determination that were so prominent in the character of the man.

### Presentation to Professor Walley.

On the occasion of the reopening of the College for the winter session, Principal Walley was presented, in name of past and present students, with a silver salver and tea service and an illuminated address, as a token of the high esteem in which he was held by them, and in acknowledgment of the very great interest and enduring efforts he had manifested in their behalf.

The *Lord Provost*, who presided, called upon Mr. Gelsthorpe to make the presentation.

*Mr. Gelsthorpe* said,—On behalf of the students of this college, I take this opportunity to present Professor Walley with a testimonial and silver service, in acknowledgment of the kindnesses which he has always shown to his students, and of his best endeavours to make us all good and useful members of our profession. It is the sincere wish of every student that the Principal and his good lady may live many years to enjoy this token of our thanks.

*Principal Walley*, who was heartily cheered, in reply, said,—Gentlemen, there are times in the life of every man, I suppose, in which he feels—however much he may deprecate his own powers of doing good to, and gaining the goodwill of, those with whom he is associated, and for whom his best efforts are put forth—that he has not been forgotten, and that his labour has not gone unrewarded. Such a time is the present to me; not that such tangible evidence as this, which is forthcoming to-day, was required to convince me of this, for I feel in my heart that you, who have joined together to present this handsome testimonial to me, appreciate my bearing towards you in the past, as well as the endeavour I have made to prepare you for honestly performing in the future the duties of the profession which you have chosen for your life's work. I sincerely trust that by no act of mine shall I ever give you cause to alter the good opinion you now entertain of me. I think it must be patent to all of you that in teaching I find my greatest pleasure; and so long as my efforts in this direction are appreciated, so long shall I strive to make my teaching more profitable and useful. I do not expect that I shall succeed in gaining the esteem of every one of you, but I shall do my best in this direction, as in my eyes you every one stand towards me within the walls of this institution in the same position as each other. The terms in which the words of your testimonial are couched make me acquainted with the fact that not only the students of the present but those of the past also have been engaged in the work of which this act of yours to-day is the consummation, and I need not tell you how much pleasure this fact affords me. When students pass from beneath this roof, they are still, and always will be, students to me; and so long as they make themselves worthy, it will be a privilege and a pleasure to assist them in their career in life. I can scarcely allow the present opportunity to pass without directing your attention to the good work performed by him who founded this institution, and in the ceremony of unveiling a statue to whose memory you have assisted to-day. His was no idle life, and if you wish to make yourselves respected by your fellow-men, to make yourselves useful members of society, and to gain the reward of a good conscience, you have only to follow his example. This ceremony of to-day forms a link

between him and us, and I trust the statue you see from these windows will be a stimulus to you to work earnestly and honestly, so that you may fit yourselves for the task of easing the pains and sufferings of a creation which has no power to ease itself. The work of a veterinary surgeon is a noble work, unappreciated though it often is, and on the whole, and for the reasons I have just stated, it does not stand second to that of those who are engaged in the practice of the sister profession. In conclusion, gentlemen, I can only ask you to believe me when I say that from my heart I thank you for these valuable tokens of your goodwill towards me, and that so long as life shall last they will be to me the most cherished possessions. Professor Walley also said the gift was doubly valued by him for the reason that the students had, within a period of six months, presented to Professor McFadyean a similar testimonial and a diamond ring. (The Principal was warmly cheered during the delivery of his speech.)

### Introductory Lecture delivered by Principal Walley.

Gentlemen,—In view of the interesting ceremony in which you took part on Wednesday last, it might at first sight seem unnecessary that I should introduce the Winter Course of Lectures by a formal address; and I must confess that it was only a few days ago that I determined upon taking such a course, and I did so for two reasons: firstly, because I felt that without an introductory address from either myself or one of my colleagues, I should be constantly thinking that the machinery of the session was in some way out of gear, and I believe the same impression would have been left on your minds also; secondly, because an address of this kind affords an opportunity for reviewing, briefly though it may be, all the good and important work which may have been done during the sessional year, and also enables one to give to the general public information which may be both interesting and beneficial. The subjects, then, which it is my intention briefly to discuss to-day are three: viz. the *Progress of Contagious Disease* within these realms during the past year, the *Different and Ever-varying Phases of the Germ Theory*, and *Sanitation*. Most of you are aware that a panzoötic wave of disease has swept over this country within the past twelve months or two years. Epidemics, fortunately not of a destructive character, and epizoötics have spread far and wide; with the former we have nothing to do, further than referring to the fact that influences have been at work which have engendered, or perhaps I should say have favoured, the development of zymotic diseases in man and animals alike. This experience is not new, for it is a well known and established fact that when epizoötics rage, epidemics are equally rife; and, indeed, there is nothing remarkable in this, seeing that in both instances the same influences work to the same end.

In reference to animals, then, while pleuro-pneumonia has declined, foot-and-mouth disease has raged to an alarming and ever-increasing extent, and with it swine fever seems to have taken a new lease of activity. Rabies in the dog, fortunately, has been comparatively quiescent, and on the whole the same remark will apply to glanders in the horse; but the equine race has experienced the baleful effects of a widespread epizoöty of effusive fever—"pink eye."

Looking at the fact that epizoötic eczema is still in vigorous life, it naturally demands the greatest amount of consideration. Those of you who were here last winter will remember the sudden outbreak of the disease in the city, but not all of you, perhaps, are acquainted with its source. The history of the outbreak is instructive, as showing that

while we are on the look-out for the enemy from one quarter he may appear suddenly from another; may, in fact, outflank us. Zealously had we watched the English border counties, fearful that from thence the disease might be introduced into our midst; but from Ireland (up to this year free from disease) we did not anticipate that the malady would steal in upon us. Thus it happened that, according to the generally entertained opinions, it was first imported into Ireland from England, and subsequently exported thence to Scotland, with the result that the stock owners in many parts of the country experienced a taste of its baleful effects. That the outbreak did not get a firmer footing, and that it did not extend its area, was due solely to the vigorous action taken by local authorities, both of burghs and counties, with the view not only of circumscribing, but also of effectually suppressing it; and in this they have been successful, and while our neighbours across the borders, and our friends across the North Channel have been struggling hopelessly against the ever-advancing enemy, we have succeeded in not only circumscribing the affection within very limited areas, but have exterminated it entirely.

It is to me a pleasant reflection, gentlemen, that our profession has had a hand in the good work, and that more than ever before, perhaps, our knowledge of the nature and character of such maladies has enabled us to give valuable advice, and that this advice has been readily and, I think, beneficially acted upon.

That diseases of the class to which I am here alluding can be held in check and effectually stamped out, has been amply demonstrated in the case of the recent outbreak of foot-and-mouth disease. Let us for a moment consider the case of Edinburgh. In April, 1882, an outbreak of the disease occurred—whence it came is still to me a mystery—in the byre of one of our cowfeeders. The owner of the animals knew his duty, and performed it; he reported the outbreak, and by assistance of the cattle salesmen of the city the local authority was enabled speedily to rid the city of its hated presence.

Following this we had a period of repose and apparent immunity, when suddenly it was broken in upon by a second outbreak, introduced through the medium of a lot of cattle from the North of Ireland, which had become contaminated in transit through the City of Glasgow. This outbreak extended far and wide, but, fortunately, it too was got rid of in a comparatively short space of time, though in some counties it threatened to over-ride all opposing influences. A lull, with one or two slight breaks (as in the case of some Canadian cattle which had also beeome contaminated in transit through Glasgow) again occurred, when suddenly the unpleasant fact that the enemy was still in existence was brought before us in the shape of another lot of diseased Irish bullocks; and in reference to this lot grave suspicions, to say the least of it, were entertained that the malady had been contracted in the western city. This visitation was quickly suppressed, and we had the satisfaction of seeing the disease circumscribed to the lot in which it made its appearance.

I have sketched this brief history of our experience of the disease in order to draw a parallel between the working of the Contagious Diseases (Animals) Act in Scotland, in England, and in Ireland.

It will probably be said that there must be some other influences at work to enable us to combat this and allied affections than the mere putting in motion of the machinery of the Act to which I have referred. It has often occurred to me, and I have publicly stated the opinion before, that there must be something in the Scottish climate inimical to the development and propagation of this and allied diseases; but be this

as it may, and giving such influence, if it exists, all due weight, one thing is certain, that we have succeeded in doing that which our neighbours have failed to do, and that we have had no other weapons (no extraordinary measures) placed in our hands wherewith to combat it than those with which they too have been provided. That we have had difficulties to contend with cannot be denied, and it is pleasant, after the battle is over, to reflect that those difficulties have been met and overcome. But while this is so it will require great care on our part to prevent a re-introduction of the disease, and I must confess that I do not anticipate we have seen the last of it; though while making this confession I have faith in the sufficiency of the measures it is in our power to put into force, and believe that, as in the past so in the future, we shall be able, if the disease is unfortunately re-introduced, to cope with it.

Successful as has been the Act in Scotland in arresting the progress of the foot-and-mouth-disease, its application in its present form has led to much inconvenience; it has harassed trade and it has disarranged business to a very great extent, and this has been due largely to the interpretation which has been placed upon the provisions of the Act, and the orders issued under it by different local authorities. Contemplating the action of these bodies in the past age, even in the present, one would think their interests were mutually antagonistic, as their actions in some instances have not only been anomalous, they have been retaliatory, and the prosecutions instituted by some have even the appearance of harshness, if not of vindictiveness.

Legislation in this country is not intended to be oppressive—it is paternal; and while the law properly provides a penalty for the wilful breaking of its edicts, it does not contemplate the application of a vindictive persecution against those who unwittingly fail to keep its behests.

In the case of some local authorities heavy fines have been inflicted for the most trivial offences, committed often in ignorance, and ignorance too of orders the purport of which it would take a clever lawyer to understand; while in other instances where animals have been exposed, (sometimes wilfully), in open market while suffering from disease, the punishment meted out has been ridiculously out of proportion to the gravity of the offence.

All this points to the necessity which exists (and imperatively so) for the investment of authority in a central power, a power having the assistance of the best scientific advice, and of the police force throughout the country, and the orders issuing from which shall be of universal applicability. Certainly something of this kind has been of late initiated, but it must be borne in mind that the committees of the different local authorities, whose meetings have been recently held in Glasgow, can only advise; it has no legislative function. Nevertheless, it has done good by bringing local authorities more into contact with each other, and showing them that their interests are mutual, and not antagonistic. that I hope it will be the means of getting rid, at least, of retaliatory and oppressive action.

Hitherto I have directed your attention to local bodies; one word about the central power. The Privy Council did the best bit of work it ever did by issuing the "Infected Circles Order," as it places in the hands of the minor bodies a powerful weapon for the control of disease without unduly interfering with the transaction of business in the surrounding districts. The original orders assumed that the disease was a respecter of an arbitrary border-line; the present order has abolished the assumption, and has enabled one local authority to act independently of its neighbour.

The legislation should, however, in my opinion, go further than this: it should give local authorities the power of slaughter in particular and isolated outbreaks, and it should meet the loss on such slaughter, by imperial taxation, seeing that the benefit to be derived from such a measure would be universal, not local only. And even if legislation were not carried so far as this, the providing of a suitable sanatorium by all local authorities in whose jurisdiction public markets are held, should be insisted on. I am happy to say that there is every probability of the local authority of Edinburgh taking the initiative in this matter, but whether they see fit ultimately to follow the advice tendered them or not, I have one public acknowledgement to make, and that is that the magistrates of this city have always shown themselves willing and anxious to consider with favour any proposition calculated to arrest and prevent disease, which I have had the honour, in my capacity of veterinary adviser, to lay before them.

I am quite aware that there are many people who advocate the removal of all restrictions, allowing the disease to spread hither and thither without let or hindrance. Such people are either very ignorant of the most elementary sanitary laws, or they are, in some way or other, interested parties. The losses already accruing from the effects of the disease in the limited outbreak we have suffered in Scotland are very great, and the misery and pain inflicted upon its victims by the disease are incalculable. It is all very well to say, "Oh! the disease does no harm, it is soon over, and animals thrive better after it." Granted that certain classes of stock make rapid and good recovery without much deterioration in value, what about the danger done to lambing ewes and calving cows? Ask some of the victimized dairymen of Edinburgh what they think as to the alleged beneficent effects of the disease. I am in a position to say that in several instances at least the loss will not be covered by £100, leaving out the question of the agony suffered by the animals themselves. Suppressive measures, and those of the most radical kind, are the only ones which recommend themselves to the minds of sensible people in dealing with this and allied affections. As a proof of the statement, glance across the Atlantic, and see what has been so re-recently done in the case of cholera. Carry your minds back a few years to the outbreak of rabies in this city; look across the Netherlands and see the result of compulsory slaughter in the suppression of pleuro-pneumonia—not one fresh case has been detected for months in a country previously almost decimated by the disease. Or again, take glanders in the horse, than which there is no greater scourge of the equine race when left uncontrolled, and yet there are few diseases so easily stamped out when vigorous sanitary measures are put in force. No! gentlemen, I am not one of those who believe in folding their hands and standing helplessly by while disease stalks abroad claiming day by day its holocaust of victims.

The stock-owners' millennium may not come in our day, but we can use all the energies we possess to bring it about as speedily as possible; and when disease does raise its destructive head, we can at least do all that lies in our power to stamp it beneath our heels.

In May last I had the privilege of introducing this matter as one of the major subjects for discussion, to the notice of a large gathering of my professional brethren at the first meeting of the British National Veterinary Congress held in London; and I then drew attention to the great necessity which existed of not only adopting vigorous repressive measures in dealing with those diseases at present recognised as contagious by the Contagious Diseases (Animals) Act, but at the same time of including other diseases, more especially tuberculosis and anthrax, in

the list of such maladies, and I am happy to say that with one slight exception my opinions were unanimously accepted by the meeting.

In reference to tuberculosis every day that passes strengthens the conviction in my mind that it should be grappled with by the legislature. I am quite aware that suppressive measures would inflict great loss in the case of some of our best herds, and unfortunately they are most largely the victims of the disease; nevertheless, their application is warranted, not only by the suffering it will save the brute creation, but by removing a source of contamination to our own species. Curiously enough, I am enabled to offer for your inspection, in this room, the intrinsic generative organs of a boar forwarded to me by Mr. Mitchell of Stranraer, which illustrate a not usually suspected method of contamination between male and female animals (describe the condition of the parts, and the source by which contamination would ensue), the subjects of tuberculosis.

In the event of legislative measures being applied to the suppression of tuberculous disease, the incidence of taxation for the purpose of giving compensation should be imperial, not local.

The second division of my address to you to-day, as I have already indicated, deals with a few phases of the germ theory of disease. What a wonderful volume could be written on the characters of the ubiquitous germ! Probably the literature of no subject connected with disease has attained to such dimensions in such a short space of time, as has that which refers to the development of the physically insignificant microbe; and even now we are far from arriving at satisfactory and settled conclusions on the subject, neither have we as yet exhausted the list of diseases which owe their origin to microscopic bodies of some sort or other. While the doctrine of abrogenesis may be considered as annihilated, there is still room for differences in opinion as to the probability or possibility of comparatively harmless organisms contracting in some way or other virulent and destructive powers. On the whole, perhaps, this modified doctrine commends itself more to the minds of scientific men than does the more radical one of spontaneous generation. Allowing that any particular disease is due to a recognised micro-organism, we cannot for a moment suppose that such an organism can spring out of nothing, or out of inert matter; but, on the other hand, in the case of diseases due to a non-particular poison we may, without any sacrifice of our position as scientists, believe that they may be originated anew.

I suspect Darwin, when he enunciated his theory of evolution of the higher organisms, little thought it would be one day applied to the infinitely lower; yet such is the case, and, perhaps, it is the best way of reconciling the believer in spontaneous generation to the test of his favourite bantling.

In the month of May last year, I read a paper on "Specificity in Disease" at a meeting of the North of England Veterinary Medical Association. In that paper I made the following remarks:

"The question may yet be asked, is it not possible for that which, under ordinary and natural circumstances, is harmless or inert, to acquire specific characters when placed under extraordinary and abnormal conditions?

"Though a living unit may not actually spring out of dead matter, may not pre-existing units possessed of definite qualities become so altered in their nature as, in their results at least, to present a striking contrast to their progenitors?

"Organisms, I think, it is now generally admitted, are pretty well harmless, providing the one important factor, a suitable soil, is not forthcoming; just as the seed will not grow if the soil in which it is sown possesses not the necessary elements for its nutrition, as the body

cannot live if the food presented to it is deficient in the requisite constituents for its growth and nourishment; so will organisms be rendered inert, or perish, if the ground in which they are sown is not prepared for them."

Now, turn to the *Lancet* for the 6th inst., and you will there find the following:

"In the Biological Section of the British Association for the Advancement of Science, Dr. W. B. Carpenter addressed an audience on the 'Germ Theory and Disease,' and in so doing he helped forward the views which are now held by an increasing body of biologists and physicians, to the effect that the contagia of the several infectious diseases are due to the progressive development, in hitherto innocent germs, of the conditions by which they acquire their infective activity. Dr. Carpenter treated his subject from the natural history point of view. He expressed the opinion that even the innocent hay bacillus, which, when sown in such media as broth, only lead to prutescence, and had no power of propagating its own kind within the human body, might, under favouring circumstances, undergo such a modification as to become the germ of a severe disease; and, pointing out how the lower forms of life adapt themselves to changed conditions of existence, he argued that the development of a mild or a potent infection was, in the main, a matter of cultivation. This view is very different from that which is held by a certain class, who maintain the *de novo* origin of infection. It is not a question of the development of a living organism out of matter independently of antecedent life, but the production, by *a process of evolution*, of qualities for harm in an already existing organism; and it is most probable that in such an explanation will be found the secret of the origin of the various contagia which so seriously affect both animal and plant life."

After directing attention to the experiments of Dr. Burdon-Sanderson, in which he showed that a comparatively harmless pus might contract, by cultivation in the peritoneal cavities, the most virulent properties, the writer of the article goes on to say:—"In much the same way Dr. Carpenter now asserts that the potency of the several specific contagia which affect man depends upon the nature of the breeding ground."

Some time ago, both Vulpian and Steinberg showed, by experiment, that healthy human saliva introduced into the subcutaneous connective tissue of rabbits, produced death in forty-eight hours, and that the blood of the infected animals teemed with micro-organisms, and produced a similar condition when re-inoculated in other rabbits.

I wish now to direct your attention to another and unlooked for phase in the germ theory, and again I have to refer you to the *Lancet* of the 6th inst., at pp. 600, 601, of which you will find that (according to Sattler, Cornil, and Berlioz), an active drug—the Indian liquorice—owes its property of inducing a local inflammation when applied to the conjuntival membrane, and a general toxic effect when introduced into the system, entirely to the action of a parasite of bacterial nature.

I need not point out what an important influence this discovery must necessarily exert upon the germ theory of disease in animals.

Much as the germ theory may assist us in explaining the origin and nature of many maladies, it is one that is very liable to be stretched and perverted, and the cultivation of germs is undertaken by men under conditions more calculated to assist in the growth of potatoes than of such subtle and ubiquitous creatures as micro-organisms. Moreover, diseases are attributed to their influence which owe their origin to more simple causes.

There is *only one test for such organisms*, and that is *inoculation* and *re-*

*inoculation*, and in several cases where disease has been attributed to their action this test has failed.

I cannot leave this part of my address without referring to the satisfactory manner in which two very important subjects have been cleared up of late, viz., actinomykosis, by the writings of Dr. Fleming, and the life history of the liver fluke by Professor Thomas, late of Cambridge.

The *third section* of this day's address deals with *sanitation*.

There are probably some people who think that veterinary surgeons have nothing to do with sanitary matters as applied to the human race. Certainly in some respects this idea is true, but surely when the consumption of animal food is in question, those who are intimately acquainted with the habits of the brute creation—who know, or ought to know, the intimate structures of the animal frame, who have made themselves acquainted with the changes these structures undergo when acted upon by disease, and who have studied the effects of these diseased structures upon the human body, are entitled to be heard in connection with such matters, and their opinions relative thereto respected.

The subject of sanitation, in reference to the flesh and milk of animals used for human food, formed a part of the paper to which I have already referred as having been read by me at the first meeting of the British National Veterinary Congress.

In that paper I referred to the fact that hundreds of animals, more especially cattle and sheep, were, every year, exposed in our public marts for sale, and ultimately slaughtered for the purpose of human food, the flesh of which, if not absolutely deleterious, was at least innutritious; and I further pointed out that, practically, there was no check placed on the sale of such animals.

Such a condition of matters is a disgrace to our national common sense and prudence.

Why should it be even a *possibility* for men who care nothing for the health and well-being of their fellows, so long as they can fill their purses from the proceeds of a nefarious traffic, to carry on such an abominable and disgusting trade as that of a "carrion butcher?"

Such a trade could not exist a single day if rigorous measures were put in force, and if these measures were made universally applicable. Why should Edinburgh, for instance, be an outlet for the disposal of the flesh of all the diseased animals which are killed in private out-of-the-way slaughter-houses, or in some sequestered spot in the hollow of some hill in the neighouring county? Why does not the legislature give the inspector of markets power to seize every animal found exposed for sale whose condition shows that it is the subject of some deadly disease, and, in all probability, one capable of transmission to the human subject by ingestion?

We cannot, perhaps, blame salesmen for selling such animals as those to which I have referred. They are sent to them for sale; they get a commission for selling them, and it is not natural that they should be expected to pitch even a bawbee into the ditch. There should be no option in this matter; every such animal should be seized, and taken to a public abattoir for slaughter and inspection, but so long as the law does not empower market officials to do this, and so long as "blockade runners" can purchase such animals, take them outside the boundary, and there slaughter them, so long will the vicious system be perpetuated, and so long will the lower strata of the population be exposed to the deleterious influence of the flesh of consumptive and other animals. The race of carrion butchers should not find standing-room in a civilised country, and the manufacturers of potted meats, polonies, &c., should be subjected to a stricter surveillance. Granted that in the case of the

more respectable men of this class any interference with their trade would be a hardship, the suppression of an illegitimate traffic, which reflects to some extent upon a legitimate one, would be to them a great gain.

I have been led to make these remarks mainly by an occurrence which took place in this city only a short time ago, viz., the prosecution of one of the class to which I have referred, for exposing decomposing horse-flesh for sale.

Horseflesh, when healthy and fresh, is, as I can positively avow, more palatable, and it is probably more nutritious, than that of the ox, and there is no animal so free from disease, if we except glanders, liable to be propagated in the human species, than the horse; but every man or woman who purchases flesh meat for consumption has a right to expect that he will get that which he has been accustomed to buy, whether ox-beef or mutton, and not have palmed off upon him the flesh of an animal of a totally different species. The legislature, very properly, does not interfere with the sale of horseflesh so long as the animal from which it has been obtained was healthy, or so long as the flesh itself is in a wholesome condition, but it assumes that such flesh is sold for what it really is, thus giving the intending purchaser an opportunity of buying it with his eyes open. As things are at present, the traffic affords a ready and profitable outlet for the disposal of all kinds of animals, and we have no guarantee that some of them at least are not the subjects of that deadly and repulsive disease, glanders.

In addition to the consideration of flesh meat we have the question of milk supply. It is now an established fact that there is no fluid so capable of absorbing and supporting contagion as milk, and numerous outbreaks of zymotic disease have been traced to this source, but very frequently propagation of disease by this source is more fancied than real, hence we sometimes hear medical men declaring that a particular outbreak of diphtheria has been due to the existence of diphtheritic mammitis in one or more of the cows in the dairy from which the milk has been supplied. Now, it is a remarkable fact that I have never yet seen diphtheritic inflammation of the udder of the cow, nor do I know any veterinary surgeon who has, and assuming that such a type of inflammation existed in this organ, is it probable that secretion would go on; or if it did to a slight extent, would not the secretion be so altered in its character as to enable any ordinary person to detect the fact that there was something wrong, or could any dairyman in the enjoyment of his senses risk the loss of his business by mixing such milk with his regular supply? Again, it sometimes happens that medical men discover an outbreak of aphtha amongst their patients, and their excited imagination leads them to the assumption that the milk has been obtained from animals the subjects of foot-and-mouth disease; but on an inquiry being instituted, not only is it found that the disease does not exist in the particular type of cows from which the milk has been obtained, but it has no existence for many miles around.

Having then, gentlemen, briefly touched upon the three principal subjects of my address it only remains for me to urge upon you the necessity of seizing upon every opportunity which offers itself to make yourselves masters of that most important of all subjects to veterinary surgeons, Sanitary Science; and, in order to enable you still more thoroughly to do this, you must make yourselves acquainted with disease in all its aspects. Do not content yourselves with a superficial knowledge; do not think it is enough to be enabled to say to your examiners that such-and-such a disease is found in such-and-such an animal; that kind of knowledge is useless either to you or to any other person, and reminds

one of the kind of teaching sometimes found in dictionaries to the fact that "Pyramus was the lover of Thisbe," not taking the trouble to tell us what other occupation than that of loving Thisbe, Pyramus had, or whence he came. Certainly the primary function of the veterinary surgeon is "to heal," but there is a secondary function of almost equal importance, viz., "to prevent" disease, and in proportion as the profession shows itself willing and capable of doing this, in like proportion will it be valued and cherished by the community and the State. It is, I think, more pleasant to reflect that the county or borough in whose precincts you reside, and for whose well-being you are (as far as immunity from contagious animal diseases is concerned) responsible, than to be able to say "Oh! such-and-such a disease has been very rife of late, and I have had marked success in my treatment of it." To me, at least, the reflection is a pleasant one, especially that at the present moment no contagious disease exists in the City of Edinburgh.

You may not be always successful in your efforts to stamp out such diseases; remember you are neither ubiquitous nor infallible, and, though in your own estimation you may be Argus-eyed, there will still be a probability of disease slipping into your preserves unseen and unsuspected; neither are you to expect that any efforts you may make for the good of the community will be always appreciated or rewarded. Nevertheless, I would have you persevere in the good cause, and if no other reward comes to you, there will always be that emanating from the consciousness that you have done your duty, and this reward no man can take from you.

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## NEW VETERINARY COLLEGE, EDINBURGH.

The new veterinary college which has been erected in Leith Walk for Professor Williams was formally opened on Wednesday afternoon, October 24th, under the most auspicious circumstances. It was arranged that Professor Williams should deliver an address at one o'clock in the class-room, and at that hour the building was crowded with gentlemen from all parts of the country interested in veterinary science, amongst whom were the following veterinary surgeons—A. Hume, Haddington; R. Paterson, Dumfries; A. Balfour, Balweay; A. Balfour, Markinch; G. Philip, St. Andrews; D. Crabb, Carnouetie; A. Spreull, Dundee; G. Young, Haddington; R. Mitchell, Glasgow; J. Borthwick, Kirkliston; J. Aitken, Dalkeith; J. Aitken, Causewayside; J. Aitken, junr., Causewayside; P. Moir, Edinburgh; R. Rutherford, Edinburgh; H. Seton, Edinburgh; J. Vaughan, Doncaster; J. Young, East Calder; J. Johnston, Peebles; J. Clark, Cupar Angus; A. Robinson, Greenock; Arch. Robinson, Greenock; A. Boyd, Melrose; J. Grainger, Jedburgh; W. Dacre, Allrincham; H. Thompson, Aspatria; J. Bell, Carlisle; J. M. Stewart, Stirling; M. Hedley, Darlington; A. Bain, Liverpool; W. H. Bridge, Bolton; E. Faulkner, Manchester; F. Hopkin, E. Kitchen, Liverpool; A. Michaelis, Manchester; J. Tait, Aberdeen; A. Robb, Glasgow; M. J. Roberts, Kendal; W. Hepburn, Coldstream; F. Whittaker, Bury; W. Woods, Wigan; Finlay Dun, W. Anderson, Hexham; G. Elphick, Newcastle; H. J. Cartwright, Wolverhampton; J. M. Axe, Doncaster; D. Aitken, Loughborough; W. Snarry, York; D. Sowerby, Hull; P. Walker, Bradford; J. Thomson, Old Aberdeen; J. Cameron, Berwick; T. D. Connochie, Selkirk; W. D. Connochie, Selkirk; A. Stringer, Belfast; J. Hutton, Kelso;

C. Cunningham, Slateford; D. O'Leary, C. Phillips, A.V.D., T. Mitchell, Leith; Dr. Murray, Dr. Thatcher, Dr. Playfair, Dr. Caverhill, Dr. Littlejohn, Medical Officer of Health for City of Edinburgh, Professor Rutherford, Major Wilson, D. Salmond, Bingley; Bromby, Lancaster; Summers, Annan; besides a number of ladies. On the platform there were deputations from the Highland and Agricultural Society of Scotland and the Yorkshire Veterinary Society. The deputation from the Highland Society was headed by the Marquis of Lothian, and the other deputies included—the Earl of Mar and Kellie, Sir James Gibson-Craig, Bart.; Sir James Gardiner Baird, Bart.; Sir Hew Dalrymple, Bart.; Major Campbell, Colonel Hare, of Calderhall; Colonel Gillon, of Wallhouse; Mr. Balfour, of Balbirnie; Mr. Smith, Stevenson Mains; Mr. Wauchope, yr. of Edmonstone; Mr. Mylne, Niddrie Mains; Mr. Hope, East Barns; Mr. F. N. Menzies, and the Rev. Dr. Grant. The deputation from the Yorkshire Veterinary Society consisted of Mr. Axe-Doncaster, president, Mr. Schofield, Pontefract, secretary, and others. The Marquis of Lothian occupied the chair, and briefly introduced Principal Williams, who was warmly received.

*Principal Williams* proceeded to deliver the following interesting address, which was listened to with evident appreciation:—My lords, ladies, and gentlemen,—Permit me to thank you most sincerely, and, so far as lies in my power, to express to you all my appreciation of the honour you pay me as well as this institution by your presence here to-day, a day which to me will be ever memorable and eventful, marking as it does the foundation on a more durable basis of a second veterinary college in Edinburgh, a city which has been associated with the teaching of veterinary surgery almost since it was recognised in this country as a science worthy to be followed by educated men. The presence of so many associated not only with my own profession, but with medicine, agriculture, and other departments requiring a scientific knowledge, assures me that my venture recommends itself to their approbation and support. It would ill become me to refer at any length to the history of the foundation of a second veterinary college in Edinburgh, where one founded by my own teacher and preceptor had existed so long, and over which I had the honour to preside for some years. Suffice it to say, that in vindication of my reputation as a professional man, and in defence of my character as a citizen, I felt compelled ten years ago to resign my position in Clyde Street, and apply to Her Majesty for the sign manual to teach veterinary science in this city, and to establish the new veterinary college. Notwithstanding some opposition, Her Majesty's sign-manual was obtained, and from the opening of the first session to the present time our success has more than exceeded our expectations, so much so that the premises in Gayfield became too small for our requirements, and it became imperative that greater accommodation should be provided for the large increase in the number of students. The chief aim and object in the design of the present building has been to secure accommodation not only for our students, but to enable us to demonstrate clinically our treatment of disease, and to show the higher value we attach to physiological principles and sanitary measures than to mere medical remedies, and also to give facilities for the scientific investigation both of healthy and diseased structures and processes; in fact, we aspire not only to encourage a desire for research in our students, but also, as is the case in continental laboratories, to give facilities to those members of the profession who have already been engaged in its ardous toils and duties, and who may wish to improve their knowledge, and perhaps to unravel, with the assistance of scientific applications, some

mysterious problem which may have repeatedly arisen in the course of their ordinary practice. To all of these we shall give a hearty welcome and every assistance. It is not my purpose to enter into minute details descriptive of the college, but there is one arrangement, unique in this country at least, to which I would wish to refer, namely, the provision made for the special treatment of chest diseases by means of warm air; several of our loose boxes being furnished with hot-water pipes, by means of which the temperature can be raised to and kept at about 70° Fahr. I consider this of very great importance, particularly in a climate like that of Edinburgh, where the cold winds of spring are the cause of such diseases. I am sure that my professional brethren will agree with me when I state that many valuable animals have been lost, and convalescence retarded in others, by being compelled to breathe cold air whilst suffering from diseases of the air passages.

From the commencement of my career in Edinburgh I have had, as I have to-day, the impartial support of the Highland and Agricultural Society of Scotland, and the kind advice of its respected secretary, to whom, as well as to the society generally, I now tender my best thanks. To my profession generally I am under a deep sense of obligation and gratitude, for without the patronage and support of its members, both in this country and abroad, who have sent their sons and pupils here as students, I could not have founded nor continued this new institution. Most deeply do I feel a gratitude which I cannot express as I see so many well-known faces, and particularly when I have the honour of receiving a deputation of my professional brethren, who, after my long absence from Yorkshire, have not forgotten my humble efforts as the first secretary to the Yorkshire Veterinary Society.

The year which is now drawing to its close has been a very important one to our profession, owing to the outbreak and dissemination of that eminently contagious malady known as the "foot-and-mouth disease;" and from this the question naturally arises, Is the Contagious Diseases (Animals) Act sufficient to deal with and suppress contagious diseases? In answer to this, I may state that I consider the Act to be very comprehensive, but that its efficiency is impaired by the manner in which it is carried out. The body of "decrees" or "orders" which contains the rules for its administration is too voluminous, often contradictory, differently applied in different localities; so that one district may have regulations distinct and separate from those of another. Again, the authorities who carry out the Act are different in England to what they are in Scotland. In the English counties the local authority for the purposes of the Act are the Justice of the Peace in General or Quarter Sessions assembled, and in the boroughs the Mayor, Aldermen, and Councilmen; whilst in the Scotch counties the local authorities are from five to fifteen Commissioners of Supply and an equal number of owners and occupiers of land, and in the burghs the magistrates and Town Council. But over and above these, both in England and Scotland, the Privy Council has a strong controlling power —regulating slaughter in some diseases (such as rinderpest), but not in others; ordering the movement of animals; declaring infected areas; and controlling the inspection of seaports. Seeing that unity of action is almost an impossibility in such arrangements, it was unanimously agreed at a meeting of the National Veterinary Association, held in London in May last, when the subject was considered, "That in the opinion of the meeting it would be wise for the working of the Contagious Diseases (Animals) Act if the Privy Council were to take the whole responsibility on itself, and not to leave it to the local authorities." It was also most unanimously conceded that the Act itself was very good,

but that its usefulness was impeded by the manner in which it was carried out, and that very often there was a want of a true comprehensiveness of the diseases dealt with on the part of those who have the power of legislating. The history of the last few months bears out the correctness of the above resolutions; and that the provisions of the Act have been neglected until the disease has taken such firm root as to render legislative measures almost imperative to prevent its diffusion and continuance. I apprehend, however, that the idea of one central authority acting for the United Kingdom will not be entertained; but there is one arrangement which requires immediate consideration, namely, that the country generally should be mapped out into infected and non-infected areas, instead of into burghs and counties, and that legislation should apply to districts whilst infected only. At present the method of declaring a whole county infected, and prohibiting the removal of cattle from it to another county, whilst perhaps only a small area is infected, is considered a very great hardship by those interested in stock. For example, suppose an outbreak were to occur, say, at Blair Athole, the whole of Perthshire would be scheduled by all other local authorities, and no animals could be moved from any part of that infected county into another. Now this would press very hard upon those living about Callander or Doune who wanted to sell and remove any of their cattle or sheep; whereas, if infected areas were declared, the prohibition would only extend a short distance from the infected place, and the hardship be felt by a comparative few, as there would be a free access from the healthy portions to other counties. As a bright contrast to the almost universal apathy manifested by the English—Westmoreland and Cumberland excepted—and Irish local authorities, I have to point out the admirable method by which in Scotland the disease was grappled with and suppressed during a season which may indeed be stated to have been one of those peculiar periods which seem to favour the opinion that during some years there are certain conditions, aerial or terrestrial, in which the virulence of certain diseases is more pronounced than in others; when such diseases have a greater tendency to spread over large areas; when, in fact, the crops of germs or other matters to which they owe their origin are abundant and strong. Take this example:—Foot-and-mouth disease was introduced into this city and county early in February last by some Irish cattle which had been landed on the previous day in Glasgow and transmitted to the Edinburgh Cattle Market, where they were found to have the well-known symptoms of the disease, and which, in the opinion of many competent judges, were of several days' standing—in fact, they must have had the disease before they left Ireland. Now this proved two things—1st, that the inspection in Ireland had been inefficiently performed; and 2nd, that the Glasgow authorities had been equally inefficient. Indeed, on investigation, it was ascertained that inspection of Irish cattle was not deemed necessary in Glasgow at all, that being left to those on the other side of the Channel—a misplaced confidence not likely to be indulged in again. These cattle were found in the Edinburgh Cattle Market; and here another blunder was committed, for which the country has had to suffer, for instead of ordering the gates of the market to be closed at once, the burgh authorities allowed the cattle to leave the market, and in a very few days both the burgh and the county authorities had several centres of disease to contend with, but, unlike those of England and Ireland, they at once grappled with and in a short time entirely suppressed it. It cannot be denied that this very satisfactory termination of what threatened to be a universal scourge was due to the vigilance of the authorities, and more particularly to that of

the chairman of the local authority for the county, to whom the country generally is very much indebted. It is also to the credit of the veterinary inspectors to say that they acted in a most impartial and straightforward manner. By them the centres of infection were discovered, declared infected, isolated, and kept under supervision until all danger of spreading was over. If this state of matters is compared with the modes of procedure over the border, where local authorities are often at variance one with another, the sad consequences of which are only too well known, the superiority of the Scotch system will be abundantly manifest. To secure the efficient working of the provisions of the Act, I would take leave to point out that it is necessary that local authorities, if they are to continue, should be in unison, and that none but thoroughly qualified veterinary surgeons should be appointed as inspectors, and that they should be very differently remunerated from what they are at present. For example, a veterinary inspector has often to travel six, eight, or ten miles in all sorts of weather to examine a score or two of cattle affected by a contagious disease, or several scores of sheep affected with scabies, or pigs suffering from swine plague—report to the local authorities and to the Privy Council—and for his visit, expense, time, trouble, and professional skill, he receives the princely sum of about seven shillings. Now this is not a remuneration for a veterinary surgeon to perform the important duty required of him. It is mistaken economy, and may—nay, undoubtedly does—result in errors and serious loss to the country. It should not be forgotten that the suppression of the spread of disease, and the stamping of it out, however advantageous to the country at large, means, and is, a diminution of income to the professional man, for the prevalence of disease is his harvest. Let the country, then, deal generously with the veterinary inspectors, and avoid appointing any but the best qualified. There are many so-called veterinary inspectors who are not members of the profession at all, and whose services can be had at a very small outlay; but this is a method of dealing with an important matter which ought not to be allowed to continue. The foot-and-mouth disease is an eminently contagious and infectious malady, and is diffused in a variety of subtle and mysterious ways—so much so, indeed, that some people, even now, contend that it originates spontaneously in this country. In some contagious diseases it is necessary that there be actual contact between diseased and healthy animals before the disease is communicated from the one to the other; but the virus of the disease in question is conveyed from place to place by attendants, utensils, manures, dogs, mice, rats, &c.; indeed, so subtle is its infectiousness that in a few days from its appearance in a district it will, unless the greatest precautions are taken, appear in apparently isolated centres, and where circumstances would indicate that conveyance of the virus could not have occurred. But, gentlemen, we are not to be led astray by what appears to be inexplicable, nor are we warranted in concluding that the disease originates spontaneously in this country, as its history proves incontestably that it is always an imported disease. We are not, however, to conclude that because foot-and-mouth disease does not originate spontaneously here, that it does not do so in some other country; and notwithstanding the very general opinion of scientific men that no contagious diseases originate except from contagion, I cannot overcome the old-fashioned conviction that such may, even in our day, originate spontaneously—I mean that they may be induced by materials other than those transmitted from the systems of diseased animals—and upon this point we have lately had the views of some of the most learned members of the medical profession. It is said, for example, that cholera, which is undoubtedly a contagious

disease, may be bred in collections of decomposing matters, sewers, heaps of filth, and marshes, and that the last outbreak in Egypt had been proved by Surgeon-General Hunter to have originated from the Egyptian marshes, and not imported from India, as had been asserted. Again, it is very conclusively shown that diseases, such as tubercle, which originates in the form of a benign growth, gains autonomy, or an independent life, during the changes which occur within it, and thus becomes virulent and infective. It is very true that a *bacillus*, or rod-like organism, has been demonstrated in tubercle, and it has been asserted that this organism is the cause of the disease; but until it is proved that the *bacillus* is present in the very earliest stage of tuberculosis, and that of itself—unmixed with the products of the diseased process—it is capable of inducing the disease in healthy animals, I cannot be convinced that tubercle does not originate spontaneously. At the same time I freely admit that its transmissibility from animal to animal and to man is sufficiently proved, and that tuberculosis should be included in the Contagious Diseases (Animals) Act. I might, if time permitted, refer to other evidences, which prove that the ordinary matters contained in the atmosphere, as shown by the experiments of Koch, may, under certain conditions, be so developed as to give origin to communicable or infectious diseases; but perhaps you will think that I have dwelt sufficiently long upon this point at present. My reason for referring to the matter at all is for the purpose of combating the idea, which seems to become stronger and stronger, that infective diseases never originate except from organisms or other products evolved from the bodies of animals already diseased. If this opinion were to prevail, what benefits are we to derive from sanitation, purity of atmosphere, good drainage, and conditions which, in this country at least, have almost abolished that dire and fatal malady, glanders—a disease which was rife in the memory of many of us? Glanders is now said never to originate spontaneously, and I believe that, under existing conditions, there is a deal of truth in the statement. If we compare the conditions of our stables and the general treatment of horses with those of, say, twenty years ago, we can see some force in the conclusion; but if the surroundings of horses were now as they were in the past, I have no hesitation in stating that there would be numerous instances of glanders of spontaneous origin. Having, then, almost abolished glanders by improved sanitation, is it not reasonable to suppose that we may yet trace the conditions giving origin to *all* contagious diseases, and having found these out, be able to abolish them entirely? I believe that science will yet achieve that great and happy end. Whilst so many members of my profession are present, I hope I may be pardoned for referring, in the next place, to what more immediately concerns the profession than the public. Doubtless most of you are aware that during the last few years the profession has made very rapid and upward progress, and that it now stands in a much better position, both scientifically and socially, than it did a few years ago. This happy result has been due to the efforts of several earnest men, who first of all founded associations for the purpose of considering the requirements of the profession generally, and of bringing those requirements before the notice of the Council of the Royal College, where after a time they received due consideration, and were carried into effect. In 1876 a supplementary charter was obtained, which conferred certain privileges and improved the status of veterinary surgeons; it also enabled the Council to grant a diploma of fellowship and to elect honorary and foreign associates, and that at the end of ten years none but fellows shall be eligible as members of Council or members of the

Board of Examiners. Next in order we had the supplemental charter of 1879, which enabled the Council to grant diplomas to the holders of the Highland and Agricultural Society's veterinary certificate. Then, in 1881, an Act of Parliament was granted to the profession, making it penal for any one to assue the title of veterinary surgeon unless properly qualified and holding the diploma, also giving the Council power to remove the name from the register of any member who, having committed a misdemeanour or higher offence, shall be deemed unworthy to be a member of the profession. It will be thus seen that, in the space of five years, the profession has obtained two charters and an Act of Parliament, and one would have supposed the Council would have been satisfied; but such was not the case, for during this year an application was made to the Privy Council for yet another supplementary charter to enable the Council to compel all candidates for the diploma to serve a period of pupilage with a veterinary surgeon before presenting themselves for the final examination. The schools were unanimously opposed to this charter, and the three Scotch schools, assisted by the Highland and Agricultural Society and the Corporations of Edinburgh and Glasgow, were enabled to bring such arguments to bear upon the Privy Council as convinced that body that it would be inexpedient to grant the power craved for to the Council of the Royal College of Veterinary Surgeons. In every reform which has been established during the last fifteen years the Council had the willing and hearty support of the schools—indeed, it may be stated that many of the reforms emanated from the schools themselves; it, therefore, can only be a matter of regret that the majority of the Council insisted upon applying for this new charter, when the united voices of the teachers were against it. I will dwell upon this no longer. It has been a matter of regret to many well-wishers of the profession; however, let it pass, and in the future let all unite together in codifying and consolidating the powers we now possess. Let us all, also, reconsider our present system of examination, and endeavour to make it more in accordance with the methods adopted by our universities and other learned bodies, which, in comparison with our very young profession, may be considered entitled to the respect due to age and mature judgment. One apparent defect in the present system of examination requires immediate consideration, and that is the power which is now possessed by one examiner to reject a candidate who may have satisfied the other five; and it must also be carefully considered by the Council whether the plan of examining a student clinically, previous to subjecting him to the oral examination, should continue any longer. Those of the profession who are engaged in teaching are of opinion that all students should, at their final examination, be examined on the more theoretical subjects first, and if successful be allowed to present themselves at the practical portion, and if successful obtain the diploma; but if rejected at their practical, they should not be compelled to present themselves for the theoretical portion again, nor return to college, but be allowed to cultivate their practical knowledge with a veterinary surgeon, or at a college, as they may deem most expedient. This matter has been brought before the Council over and over again, and although almost unanimously approved of at first, has not up to the present time been adopted. I must confess that individually I am surprised that an arrangement which seems to appeal to common sense and justice should not at once be adopted by the Council. The Principal concluded by giving the students a hearty welcome on entering upon the eleventh session of the College.

The noble *Chairman* said he would be failing in his duty, not only to Professor Williams and those present, but also to the Highland Society,

a deputation from which he headed that day, if he did not express to Professor Williams his hearty congratulations on the success of the present undertaking so far as it had gone (applause)—and he could assure him of their hearty support. (Applause.) Professor Williams had referred to the interest the Highland Society took in veterinary science, and it was due to that society to say that they appreciated what he said, and that the thanks of Scotland were due to the society for what it had done. (Applause.) The Highland Society had taken the greatest interest in the veterinary profession, and in fact for a long time it was the only body in Scotland which gave certificates to members of the veterinary profession. He was sorry to say that owing to recent legislation it was no longer in their power to give these certificates. It was not for him, in that place least of all, where every one took an interest in veterinary science, to enlarge on the advantages the sciences must confer on the community, but he thought they must all feel the enormous benefits which would arise to the country if it continued to be conducted on a more scientific basis. Referring to Professor Williams' remarks as to the spontaneous generation of disease, his Lordship said that his own conviction was that there was no such thing as spontaneous generation of disease, but that the different influences which occur to the bodies, whether of man or beast, put them in a condition to be attacked by those diseases. (Applause.) Many would agree that there might be a difficulty in believing in the spontaneous generation of disease. Let them look, for instance, at the discoveries in connection with the sheep plague in France. Many thought for a long time that it was spontaneously generated, because sheep were put into apparently healthy pasturages and were attacked by the disease; but it was afterwards found that the carcases of diseased sheep had been buried deep in the ground, and the action of earth-worms in bringing up diseased portions to the surface had caused the disease. (Applause.) He believed, except in disease that might be due to accidents, that every form of disease to which animals were subject was due to distinct forms of organism in the animals themselves. (Applause.) He thought there was a tremendous scientific interest open to all who embraced the profession for which this college had been built. There could be nothing more interesting than the hard good work which Professor Williams had pointed out to them as the way to success. Nothing could be a greater inducement for them to persevere than the knowledge that they were conferring benefit not only on the brute creation, but on the human race. (Applause.) His Lordship concluded by intimating apologies from Lord Balfour of Burleigh, the Lord President of the Court of Session, Sir William Baillie, Bart.; Sir Henry Seton Stuart, Bart.; Sir Alexander Kinloch, Bart.; Professor Wilson, Mr. Walker of Bowland, Mr. Irvine of Drum, Mr. Russell of Dundas Castle, &c.

On the motion of *Mr. Connachie*, V.S., Selkirk, a vote of thanks was given to the Chairman, and the proceedings terminated.

With reference to the New Buildings, which are admirably arranged and well fitted for their several requirements, it may be mentioned that Mr. William B. Lyons has in the case of the College introduced into Scotland for the first time the lithite concrete, which is made of gravel taken from the Threlkeld mines of Cumberland and the very best quality of Portland cement. This lithite stone is obtained from a quartz mine, and being combined with mica schist and hornblende to the extent of 15 per cent., it has a high degree of hardness, and is calculated to resist great weight. The former has the hardness of seven, while the latter is five to six, being thus equal in hardness to any granite.

All the loose boxes, stables, byres, bath-room, and extensive quadrangle have been laid with this lithite cement.

*The Luncheon.*

At two o'clock a luncheon, attended by 180 ladies and gentlemen, was held in the microscopic and chemical departments of the college. The Marquis of Lothian presided, and Mr. D. Salmond, Gawthorpe Hall, Bingley, Yorkshire, officiated as croupier. Grace was said by the Bishop of Edinburgh. In proposing the health of Professor Williams and success to the institution, the noble Chairman said he admired the energy and skill which had raised Professor Williams to his present high professional position. By the establishment of this college he felt sure that veterinary science in Scotland would be advanced more than ever. (Applause.)

*Professor Williams*, in reply, said, although he stood there at the head of a rival institution to the Dick Veterinary College, no man in the profession had a more sincere respect than himself for the memory of Professor Dick. (Applause.) He was a man worthy of all honour. He was the founder of the veterinary profession in Scotland, and the father, professionally, of the best men in Scotland, while his students were to be found at the head of the foremost colleges of the world (Applause.) He revered Professor Dick's memory, and he intended to show his respect for the man by witnessing the unveiling of his statue that afternoon. (Applause.) The sculptor did not know the late Professor, and he (Principal Williams) was glad to have been able to assist Mr. Rhind in producing in stone the admirable likeness which would be disclosed to their view that day. (Applause.)

The proceedings then terminated.

*Complimentary Dinner to Professor Williams.*

In the evening Professor Williams was entertained to dinner in the Waterloo Hotel by his professional brethren and a number of friends. Between sixty and seventy gentlemen were present. Mr. John Borthwick, V.S., Kirkliston, occupied the chair, and was supported by Professor Williams, Mr. Paterson, V.S., Dumfries; Mr. Scott, factor for Mr. Hope Johnstone of Annandale; Mr. Bailie, Edinburgh; Mr. Walker, Bradford; &c. The croupiers were Mr. R. Rutherford, secretary of the Scottish Metropolitan Veterinary Medical Society, and Mr. Cunningham, V.S., Slateford. Blessing was asked by the Rev. Mr. Overend, Edinburgh, and after the usual loyal and patriotic toasts—the latter being responded to by Mr. Phillips, of the 3rd Dragoon Guards, Mr. Robinson, Greenock, and Mr. Ivison Macadam—the Chairman, in proposing "The health of Professor Williams and success to the New Veterinary College," said—Professor Williams came to this city some 17 years ago as successor to the late Professor Dick, who was the founder of the first Veterinary College in Scotland. All honour to his memory; he was a great man in the veterinary profession, and he has left his mark. We have met here this day to celebrate the opening of another Veterinary College, and I think you will agree with me when I say that it is second to no other in the kingdom. (Applause.) It has been founded, as the first was, by one man, without State or any other endowment, and it is under the sole control of its founder. (Applause.) Professor Williams has had difficulties to contend with, but he has borne up and overcome them all, and they have been crowned with the success he so thoroughly deserves. (Applause.) This is shown to us by the commodious and elegant building he has erected, the large number of students enrolled (164), and the friends and members of the

profession assembled here this day to do him honour. I will not in his presence give expression to all I would like to say regarding him, but permit me to say this, that I, along with my professional brethren here, and I believe throughout Scotland and England, have always had the greatest pleasure in meeting him, especially in consultation. His opinion and advice, which are so kindly and freely given, we can rely on, and no one has done more to raise the status of our profession. (Applause.) May he be long spared to go out and in amongst us and enjoy the fruits of his labour. (Applause.) I ask you to drink to Professor Williams, and success to the New Veterinary College.

The toast was drunk with all the honours.

*Principal Williams* returned his sincere thanks for the honour done him by his professional brethren from all parts of Scotland, and from many places in England, who had assembled to do honour to one of themselves, a veterinary surgeon and nothing more, for he felt proud of his profession. (Applause.) It was a proof that they would always honour the profession to which he belonged, and he thought that marked a great step in advance. (Applause.) The gathering that night, of men from great distances, impressed him with the conviction that if a man did his work honestly and conscientiously his brethren in the profession would respect and esteem him. (Applause.) Throughout the whole of his career his endeavour had been to elevate his brethren in the profession. He had never yet taken advantage of a mistake made by a professional brother (applause), and the result was the gathering that night. He saw around him gentlemen who were examiners when he was a student, and he saw one gentleman (Mr. Hallen) who preceded him in Professor Dick's chair, and to him in a great measure his success was due. (Applause.) He was also proud of having won Mr. Hallen's prize for practical pathology, which during his many troubles had greatly consoled him, and he was pleased to see the donor present that evening. (Applause.) It was also a great pleasure to him to see present so many gentlemen who had studied under him, and who were being successful in the world. (Applause.) He thanked them, his "boys," as he liked to call them again, for what they had done that day, and which he would never forget. (Applause.) He would mention, in conclusion, that the profession had a true friend in the Highland and Agricultural Society of Scotland, whose friendship he had experienced for seventeen years. Some thought the Society meddled too much with their affairs, but he would remind them that in 1823 Professor Dick lectured in Niddrie Street, Edinburgh, to a solitary student, when the Highland Society took him up and encouraged and supported him, the result being that they had now three colleges in Scotland, all in a flourishing condition. He (Professor Williams) had been told that he was a plucky individual in erecting his new college, but what was that compared to the courage of a man who could lecture for three years to a single student? He again thanked them most heartily for their kindness to him that day.

*Mr. Finlay Dun* gave "Continued Prosperity to the Veterinary Schools," and in doing so dwelt at length on the great improvements that had taken place in the schools during the last thirty years, and stated his belief that the British colleges now possessed preceptors who would turn out thoroughly trained young men, second to none which the world had produced. (Applause.) He coupled the toast with the name of Professor Lewis, of the New Veterinary College, who suitably replied.

*Mr. Cunningham*, Slateford, proposed "The Royal College of Veterinary Surgeons," and passed some strictures on the management of that

body. Of the Council and office-bearers, one was from Ireland, two from Scotland, and twenty-eight from England; while the great bulk of the examiners were also selected from the other side of the Tweed. He paid a warm eulogium to Professor Williams's treatment of his fellow-students, and concluded by coupling the toast with the name of Mr. Cartwright, Wolverhampton.

*Mr. Cartwright*, in reply, assured them that the Royal College had the interests of the profession at heart. He hoped next year to see more Scotch representatives returned to the Council Board, and they would have his hearty support. (Applause.)

*Mr. F. H. Hallen*, of the Indian Army Veterinary Department, proposed "The Highland and Agricultural Society of Scotland," through whose co-operation with the veterinary profession the losses through disease in flocks and herds were very much lessened. When in charge of the Clyde Street College he had received the greatest support from the Highland Society, and having now returned from abroad he was gratified to find that that Society was still assisting all three veterinary colleges in Scotland, and was thus more than ever furthering and developing veterinary science. (Applause.) The certificates of the Highland Society were always received by the public as a guarantee of the holder's qualifications, and it was owing to that certificate that he had travelled so far. (Applause.)

*Mr. F. N. Menzies*, secretary of the Highland and Agricultural Society (whose name was coupled with the toast), said it had been his privilege to be associated with Professor Williams for many years, and during all that time they had never differed in opinion, for he always felt that in Professor Williams he had a man on whom he could thoroughly rely. (Applause.)

*Mr. Spreulle*, Dundee, proposed "The Board of Examiners," which was acknowledged by Mr. A. Robinson, Greenock; *Professor Vaughan* gave "The Sister Profession," to which Dr. Hunter, Edinburgh, replied; *Mr. F. N. Menzies* proposed "The Health of Mrs. Williams and Family," which was responded to by Mr. W. Owen Williams; *Mr. Connochie*, Selkirk, proposed the health of the Chairman; and the Croupiers having also been duly toasted, a pleasant and enthusiastic meeting was brought to a close about ten o'clock.

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## GLASGOW VETERINARY COLLEGE.

### Address by Dr. Cameron, M.P.

At the opening of the winter session of the Glasgow Veterinary College the introductory address to the students was delivered by Dr. Cameron, M.P. The proceedings took place, as usual, in the Lecture Hall of the College at 83 and 85 Buccleugh Street, and there was a large attendance. Principal M'Call occupied the chair, and amongst those present were: Sheriff Clark, Mr. Henry Lamond, writer; Rev. David Watson, Woodside Church; Dr. Knox, Dr. Wm. Limont, Mr. Wylie (of Messrs. Wylie and Lochhead). Mr. Thomas Campbell, Kirkcudbright; and Mr. Pottie, Paisley.

*Principal M'Call* said, I have very much pleasure in intimating that my friend Dr. Cameron, member of Parliament for the city, will deliver the introductory lecture on this occasion. (Applause.) And I am sure I need not say that you will be very glad to accord him a patient and attentive hearing. (Loud applause.)

*Dr. Cameron*, who was warmly cheered on rising to speak, after a few introductory remarks, proceeded to deal with

*The Status of Veterinary Medicine.*

He said: The importance of a highly trained and scientific veterinary profession has long been recognised in many Continental countries, and especially in France. With us the recognition of the national importance of veterinary medicine has made slower way. But within the last few years the Legislature has taken steps to place it on the footing of a liberal and learned profession. Its claims have been recognised by the Crown in connection with the Egyptian campaign in the decoration of a distinguished veterinary officer; and still more recently, the University of Glasgow has done credit to itself by first of all the Universities of the United Kingdom imitating the example of the great Continental Universities and conferring its highest honours upon a distinguished and representative veterinarian, Mr. George Fleming (applause)—a native of Glasgow, Principal of the Royal Veterinary College, with which the school is affiliated, and principal veterinary officer of Her Majesty's forces. (Applause.) I trust that the day is not far distant when we shall see the appreciative recognition thus extended to veterinary medicine by Glasgow University repeated on all sides, and developed into closer bonds of alliance—when a Chair of Veterinary and Comparative Medicine will be regarded as indispensable in every well-equipped University Medical School, and when the professorships so created, open to the ablest man to whichever branch of medicine he may belong, will be regarded as one of the worthiest objects of ambition on the part of the scientific veterinary surgeon. But although, as I have said, the scientific and national importance of veterinary medicine is gradually forcing its way towards recognition in this country, the general public is slow to understand it, and I have therefore thought that probably the most useful end to which I could devote the opportunity placed at my disposal to-day would be briefly to recount to you some of the remarkable scientific work accomplished by veterinary surgeons or in connection with veterinary medicine during the last ten or fifteen years.

*The Veterinary School of Lyons.*

Notable among the Veterinary Schools of the world is the veterinary school of Lyons. The great master of that school is M. Chauveau, a gentleman whose name crops up in relation to almost every great discovery in the world of medicine made within the last score of years, a man who has succeeded in imbuing his pupils with his own instincts of research to an extent which has shed a lustre altogether unique upon the Lyons Veterinary School, and has identified it with the advancement of our knowledge of the intimate nature of diseases to an extent almost unparalleled in the case of any other institution in the world. About twenty years ago there raged in France a fierce controversy as to the origin of vaccine. A Scientific Commission to investigate the matter was appointed at Lyons, and M. Chauveau was nominated as its chief. Hundreds of animals in the great national veterinary establishments of France were placed at his disposal for experiment, and in 1865 he published his report. This, for the light that it throws upon what is probably the most important branch of human preventive medicine has never been equalled; and had more attention been paid to its teachings in this country, it might, I am confidently persuaded, have been instrumental in saving thousands of human lives. No man can

carry through such a work as M. Chauveau performed without raising side-issues which scientific curiosity will urge him to investigate.

*The Nature of Contagion.*

Having so intimately studied the habits and peculiarities of the contagions of cowpock and smallpox, M. Chauveau next turned his attention to find out in what did contagion consist. Hitherto the vaguest ideas had prevailed on the subject. It was Chauveau who first proved that contagions were not gaseous, or fluid, or volatile, but particulate—that they consisted in minute specific particles—that these constituted the real disease-producing element, and that deprived of them the animal fluids in which they were suspended, were deprived of all their powers of mischief. Going beyond Beale, he showed that vaccine lymph contained not one but two species of minute organic particles—one much smaller than the other. By a series of ingeniously-contrived experiments he succeeded in separating them from the organic fluids in which they are found suspended and from each other. He found that when thus separated the fluids and the larger particles were inert—the smaller particles embodied the specific contagion. Similarly he analysed the virus of smallpox, sheep-pox, and farcy, and showed that in each of these diseases the infective power resided in specific particles, and that freed from them the fluids with which they were associated could not produce the disease. He showed that the concentration of these disease-seeds varies greatly in the viruses of different diseases, that that of sheep-pox, for example, may be diluted with water thirty times as largely as that of cowpock without rendering it of inferior fertility. (Applause.)

*Splenic Fever and "Braxy."*

Since the publication of Chauveau's discoveries in 1868, huge strides have of course been made in our knowledge regarding the intimate nature of disease; but all through we are indebted for the advance to investigations of the diseases of the lower animals, and to a large extent to researches conducted by members of the veterinary profession. The instance which best illustrates this is the history of a disease terribly fatal among the flocks and herds of France, and known as splenic fever. You have all heard of "braxy," and in the veterinary handbooks braxy is given as a synonym of splenic fever. I have made many inquiries as to the real nature of braxy, from among other authorities my friend Professor M'Call, but have never been able to obtain anything like proof of the identity thus generally alleged. But whatever be the disease or diseases known in this kingdom under the name of braxy, they evidently merit a closer study than they have yet received; and if the identity ordinarily accepted prove correct, what has been done abroad shows how much may be done at home to relieve our sheep-farmers from what in many instances is a source of disastrous loss. Over thirty years since, a French physician, M. Davaine, discovered that in the disease known as splenic fever an abnormal organism could be detected by the microscope in the blood, and that blood containing that organism inoculated on healthy animals gave rise to the disease. Eight years after the publication of those discoveries of Chauveau's to which I have referred, Dr. Koch, then an unknown German country practitioner, transplanted the organism discovered by Davaine into the aqueous humour of dead oxen's eyes, and maintaining them at blood-heat found that it could be grown and cultivated altogether outside the living animal.

*M. Pasteur.*

A few years later, M. Pasteur, a French chemist, of extraordinary

genius and fertility of resource, who had investigated the whole subject of fermentation with marvellous success, and had shown how wine, vinegar, and beer might be practically dealt with in such manner as to do away with the great loss entailed through the complication of the fermentations involved in their production by pernicious and deteriorating fermentations, who had subsequently been appointed by the French Government to investigate the disease of silkworms which threatened to destroy the great silk producing industry, and had succeeded so perfectly as to unravel the habits and phenomena of the disease from the silkworm-egg to the moth, and to show how, by the application of the knowledge thus gained, the silk producer might once more prosecute his calling with the old certainty of success. A few years after Koch's discovery, as I have said, M. Pasteur directed his attention to an exhaustive study of the splenic fever of sheep and cattle. You have all probably heard more or less of the results which he achieved, but for almost the first step towards these results he was indebted to a contemporaneous discovery by a veterinary surgeon, M. Toussaint, of Toulouse, a distinguished pupil of the Lyons school, and of M. Chauveau. (Applause.) There is a disease which had about that time ravaged the poultry farms of France, and which was known as chicken cholera. In investigating this M. Toussaint discovered that like splenic fever it depended upon a minute organism which multiplied itself in the blood and tissues of the fowl attacked. He ascertained further that this organism, like that of splenic fever, could be cultivated outside the animal body. This discovery at once attracted Pasteur's attention, and he set to work to find out more about the subject.

*Microbes.*

And now, to avoid periphrasis, I must introduce you to a word of recent naturalisation into English—"microbe" to wit. We have heard of specific particles in the fluids of vaccine, smallpox, sheep-pox, and farcy, and of specific organisms in splenic fever and fowl cholera. That these organisms are living there can be no doubt. Some of them can be seen under the microscope to grow and multiply themselves, sometimes by a process of cell division or budding, sometimes by the production of seeds or spores. They are now by general agreement credited to the vegetable kingdom, but, some of them being endowed with powers of motion, there was at first considerable doubt as to their real nature, and Sedillot suggested for them the non-contentious name of microbes—small living organisms. This term was found convenient, and the minute organisms now detected in connection with a very considerable number of diseases are all generically spoken of as microbes. Well, turning his attention to the microbe of chicken cholera, Pasteur discovered that outside the body it could be cultivated most successfully in chicken soup. Place a drop of blood drawn from a fowl affected with the disease in an ounce of chicken soup, and maintain it at a suitable temperature, and the disease-microbe will multiply itself so as speedily to render the fluid turbid. Take a drop of this and repeat the process from day to day, and the same thing occurs, and at the end of a long series of cultivations, which must have effectually purified it from all trace of the fluids of its original host, the microbe retains its original virulence, and inoculated upon fowls or mixed with their food produces the original disease. But applying a piece of experience gained in his study of fermentation, Pasteur discovered that by slow and prolonged cultivation in oxygen the character of the microbe became altered. It became tamed or attenuated, as he termed it. A virus, so fatal that if

inoculated on a score of fowls it would kill every one of them, might thus be attenuated so that at first it would kill only one-half, then one-third, and lastly, that it would not kill any at all. It was shown that, as in smallpox and a number of other maladies, the animal which had been attacked and recovered was not ordinarily liable to subsequent attacks, and Pasteur proved that the same result followed in fowls inoculated with the microbe so attenuated as not to endanger their life. The fact of protection by vaccination against smallpox had long been familiar to all; but here, for the first time, M. Pasteur had succeeded in systematically producing an artificial vaccine against a totally different disease. This was a great scientific discovery, but you may think one of little practical importance. Its practical importance lay in this, that it induced M. Pasteur to attempt the same procedure with the microbe of splenic fever. Certain peculiarities in the mode of propagation of that organism at first baffled his attempts. But before his indomitable perseverance every obstacle gave way, and the result was the attenuation of the microbe of splenic fever on precisely the same principle which had proved successful in the case of fowl cholera.

*A Great Sheep-Vaccination Experiment.*

Splenic fever is another of those diseases in which an attack that is not fatal protects against subsequent ones, and Pasteur showed by crucial tests that animals submitted by inoculation to the action of the attenuated microbe, while hardly inconvenienced by the experiment, were effectually protected against the influence of subsequent infection. In carrying out the operation on a large scale, as was to be expected from analogy, the protection afforded was found not to be absolute, but of its extent and importance you can best judge by the results. The Department of Eure-et-Loire was one in which the ravages of splenic fever had been most disastrous, and there, after experiments on a comparatively small scale, Pasteur's system of vaccination against the disease was largely resorted to. Between October, 1881, and October, 1882, close on 80,000 sheep and 4,500 bullocks and cows in the department were inoculated with the attenuated microbe supplied from Pasteur's laboratory, and at the close of the latter month the Veterinary and Agricultural Society of Chartres published a report of the results. The average annual loss from the disease among sheep in this department had been 9 per cent. Among those protected by Pasteur's process, it was under two-thirds of 1 per cent. (Applause.) But it happened that the year had been an unusually healthy one, and the loss among the unprotected animals had on this occasion fallen to 3 per cent. This would still represent a saving of $2\frac{1}{3}$ per cent. in favour of the animals protected by the Pasteurian system, or close on 1900 sheep in the 80,000. Among cattle the annual average loss had been over 7 per cent. Among the 4500 protected by Pasteur's method it was reduced to a quarter of one per cent. But it might be argued that perhaps the protected animals pastured upon healthier herbage. To meet this objection flocks of sheep, comprising close upon 4,000 animals were taken. Half or two-thirds of each were vaccinated, and the others were left untouched, and they were turned out together under precisely similar conditions. Among the protected the percentage of loss from splenic fever was less than one-tenth of what it was among the unprotected. But owing to defects in procedure, the virus used as a vaccine had occasionally proved too strong, and fatal accidents had resulted. That this drawback required only experience to remedy it was proved by the fact that at the later stage of the experiment over 16,000 sheep, cattle, and horses

were inoculated with virus prepared according to M. Pasteur's rules, with only one single accident.

*Pig-Typhoid.*

Nor are chicken cholera and splenic fever the only diseases which Pasteur has succeeded in reducing to submission. Within the last few weeks he has announced a similar success in connection with what is known as pig-typhoid, a disease which, a few years ago, wrought such havoc among the swine of this country that it was the subject of a special inquiry at the hands of Mr. Klein, one of the medical officers of the Local Government Board. Mr. Klein announced at the time that he had succeeded in isolating by artificial cultivation the specific microbe of the disease. In this Pasteur alleges that Klein was mistaken, and maintains that the microbe which gives rise to pig-typhoid presents characteristics essentially different. The microbe which he describes he has succeeded in isolating and attenuating by his process, and pigs protected by his vaccine have so far shown themselves proof against infection by the disease even when inoculated with its strongest virus. To test the matter practically, in a district where the disease is endemic a number of pigs have been divided into two lots—one vaccinated against pig-typhoid and ear-marked, and the other not. These, like the sheep in Eure-et-Loire, have been turned out to herd together, and the result of the experiment remains to be seen.

*Attenuation by Heat.*

But Pasteur was far from the only worker in this interesting field. When he was on the very threshold of his experiments on splenic fever, M. Toussaint, of Toulouse, to whom I have before referred, announced that he had discovered that by subjecting the blood of an animal labouring under splenic fever to the action of heat he not only deprived it of its fatal properties, but converted it into a vaccine, which on inoculation protected the animal against the effects of the strongest virus of the disease. On repetition of Toussaint's experiments it was, however, found that in certain instances inoculation with the virus treated by his method produced the unmodified disease, while in others it was followed by no protective result. This effectually discredited his discovery for a while. But his old master, Chauveau, had sufficient faith in him carefully to repeat his experiments, and he found that, while his mode of manipulation had been defective, the principle which he had discovered was correct. He showed that, by means of regulated heat systematically applied, the microbe of splenic fever could be attenuated much more rapidly and easily than by Pasteur's process, and that the modification produced by exposure to heat, although possibly not so permanent or reliable, was equally efficacious in the protection it afforded against subsequent attacks of the disease. The system propounded by Toussaint, and perfected by Chauveau, is stated to have been applied successfully in other diseases. Its general applicability, however, remains to be tested, but if it holds good generally, the method, as has been pointed out, possesses one important advantage. For in maladies where no mode of artificially cultivating a given specific microbe has yet been discovered, as in cattle plague, pleuro-pneumonia, &c., the natural fluids in which the microbe swarms can still be treated by exposure to heat, and the possibility thus readily tested of producing a mild protective vaccine against the disease. But the discoveries of MM. Chauveau and Toussaint do not exhaust the work of veterinarians in this important branch of medical science.

*The Maladie de Chabert.*

There is another disease of cattle, invariably fatal, which was long confounded with splenic fever, but which was identified and described as a separate disease by M. Chabert, and is known by his name as the *Maladie de Chabert*. In that disease the microbe makes its way into the solid tissues, and there finds a congenial breeding place, whence it extends and multiplies until its victim perishes. Well, three other pupils of the Lyons Veterinary School, MM. Arloing, Cornevin, and Thomas, discovered that in this disease, if the microbe, instead of being introduced into the solid tissues, where inoculation with even the smallest amount proves fatal—if it be thrown even in comparatively large quantities direct into the torrent of the blood, it not only proves harmless to the animal experimented on, but operates like a vaccine in protecting it against the disease. They discovered, too, that virus introduced into the air passages produces the same results. I am not aware that any practical application has been made of the latter discovery, but the former—the intravenous injection of the microbe—has been reduced to a system; and in different parts of France and Algeria, where the disease is prevalent, many hundreds of animals have already been protected against it in this way. This proceeding has now stood the test of several years of trial, and only the other day the French Academy of Sciences, after a careful investigation at the hands of a distinguished committee, bore witness to the importance of the discovery by awarding its authors a prize of 5,000 francs. (Applause.) Hitherto, I have spoken only of work in the field of veterinary medicine carried to a definite conclusion, and, within the range of completed work, I doubt whether any other branch of medical science can show so much to boast of within anything like an equal period. (Applause.)

*Is Consumption Infectious?*

Before sitting down, however, I should like briefly to refer to two sets of investigations which illustrate more obviously than anything of which I have yet spoken, the intimate connection between human and veterinary medicine. (Applause.) I allude to the recent researches concerning the intimate nature of tubercular or consumptive diseases, and of hydrophobia—maladies common alike to man and the lower animals. A considerable number of years ago M. Villemin adduced a strong array of facts in connection with tuberculosis in man which went far to prove that it was a diseased condition dependent upon the invasion of the system by another microbe, and that the disease might be communicated from man to man and to certain of the lower animals. In 1881 M. Toussaint published several papers on the disease as it occurs in cattle. In these he demonstrated the readiness with which it could be transmitted from animal to animal by inoculation; showed the facility with which it might thus be unintentionally propagated by means of common feeding troughs; proved that the flesh, milk, and juices of diseased animals were alike infectious; demonstrated that the infecting organism of the disease could withstand heat sufficient to moderately cook the flesh in which it was contained; explained certain peculiarities which tuberculosis presented in different species of animals; and claimed to have succeeded in separating and cultivating the specific microbe of the disease. Unfortunately, at this period M. Toussaint's health gave way, and the question rested where he left it till March, 1882, when Dr. Koch published his demonstration of the fact that tubercular phthisis in man was the work of a microbe which he had succeeded in cultivating according to a new method devised by himself. Since then the question

whether consumption in man is or is not a disease spread by infection has become one of urgent practical importance. Numerous experiments with a view to its solution have been made, with more or less contradictory results. Experience has taught us that other classes of parasites capable of existing on several genera of animals are often themselves developed into different though closely allied varieties which normally infest only one or two species of animal, and which only manifest their full vigour and vitality when settled on the particular description of host which they normally affect. Toussaint had proved the extreme facility with which bovine tuberculosis could be propagated among bovine animals, and the latest contribution to our knowledge on the subject is that by MM. Dieulafoy and Krishaber on the disease as it occurs in the animal most closely allied to man, namely, the monkey. Monkeys are very prone to tubercular disease, so much so that death by consumption is the most common end of those exhibited in our menageries. There was, therefore, no difficulty in procuring the exact tubercle-microbe natural to the species, and with it 14 monkeys were inoculated, care being taken beforehand that the animals selected were in perfect health. In the same cage with them were placed 24 other healthy monkeys. Within seven months after the operation 12 of the 14 inoculated had died of tubercular disease. Of the 24 healthy animals placed alongside them 5 died, giving a mortality of 86 per cent. in the one case and 21 per cent. in the other. After this the cage was cleansed and disinfected, and 27 monkeys had at the date of the report inhabited it for fifteen months without the appearance of a single case of the disease. (Applause.)

*Latest Discoveries about Hydrophobia.*

Hydrophobia is one of the most terrible diseases to which mankind is liable, and until within the last few months it has been one of the most mysterious. Of a dozen persons bitten by a rabid dog or cat or wolf, not more than one or two might fall victims to it. Months, or even years, might elapse before it made its appearance, and the symptoms varied so much that some authorities refused to admit that it was anything more than the extreme result of a terrified and excited imagination. It was universally believed to depend upon a poisonous condition of the saliva, but additional obscurity was cast upon its nature by the fact that the saliva of human beings labouring under it repeatedly failed on inoculatlon to reproduce the disease in dogs. It was generally classified along with tetanus as a nervous disease, and considered to be uniformly fatal. In 1878 and 1879 M. Paul Bert, a well-known French *savant*, who subsequently occupied the post of Minister of Education in Gambetta's Government, made an investigation regarding the nature of hydrophobia which cast some light upon the subject, but for some reason or other attracted but little attention. He transferred by transfusion the entire blood of a dog in a state of furious rabies into a healthy animal, and *vice versa*, and found that the healthy animal, kept under observation for a year, manifested no symptoms of the disease. As to the rabid animal, its life was apparently prolonged a couple of days by the operation. Having thus satisfied himself that the disease was not in the blood, Bert next endeavoured to ascertain in which constituent of the fluids that bathe the mouth in the disease the virus had its seat. Straining those fluids through a plaster filter, he found that the liquid which passed through was innocuous. The solids which remained behind communicated the disease. He inoculated animals with pure saliva taken from the different salivary glands, but found that it never produced hydrophobia. On the other hand, mucus taken from the bron-

chial tubes readily gave rise to it. It was therefore the mixture of this bronchial mucus in the saliva that constituted the medium of infection, and hence the explanation of the unequal action of the bites of rabid dogs. Bert also found that in a number of cases inoculation produced, not hydrophobia, but extensive and fatal suppurations. At this stage, a couple of years later, M. Pasteur took up the problem. Suspecting the disease to be of microbic origin, he endeavoured to cultivate the microbe from the saliva of a child that had died of hydrophobia. He succeeded in multiplying a microbe, but on inoculating it on rabbits found that it gave rise to an entirely different and hitherto unknown disease. Further investigation showed that this was caused by a microbe previously unsuspected that exists even in healthy saliva. Pursuing his researches, Pasteur at first found himself baffled by the uncertainty of the disease and its irregular period of incubation; but suspecting that the habitat of the microbe which he believed to be its cause was the nervous centres, he hit upon the expedient of inoculating the virus directly on the brain surface by the aid of the trephine. In the saliva the microbe of hydrophobia is mixed up with other organisms, so that on inoculation death may result in three different ways—from extensive suppuration, from the specific action of the salivary microbe whose existence Pasteur had disclosed, and from hydrophobia. But Pasteur discovered that the microbe of hydrophobia might always be found in a state of purity in the rachidian bulb of animals affected with the disease. Taken from this source and inoculated upon the brain surface of healthy animals, it multiplied itself rapidly, producing the characteristic symptoms of the malady in from six to ten days. Injected into the blood it frequently gave rise to symptoms entirely different from those recognised in connection with hydrophobia, consisting of paralysis and intense itchings. It was proved that furious hydrophobia and dumb rabies constitute but one disease, the delirious hydrophobic symptoms occurring when the microbe multiplies itself in the brain, and the purely nervous form when it attacks the spinal cord; that the two forms of the disease are interchangeable, being capable of being produced one from the virus of the other, and that the dumb or spinal form of the disease may give rise to symptoms which render it extremely probable that it often escapes identification. In the course of his experiments, Pasteur came across one dog, which, on inoculation, took the disease, and recovered from it, and which remained proof against all subsequent inoculations with it. Three dogs, besides this one, he found to be proof against hydrophobia, and he suggestively inquires whether these may not, before being submitted to these experiments, have undergone the disease in the ordinary way and recovered. Finally Pasteur found that the microbe of hydrophobia possesses a strong vitality, and that the brain of a cow which had died of the disease, kept for three weeks after the death of the animal at a temperature of 53 degrees, on inoculation repeatedly produced hydrophobia. (Applause.) Pasteur's efforts are at present devoted towards discovering a mode of attenuating the virus in the hope that by its means he may be able to render dogs proof against the disease, and thus narrow to the utmost the channels through which hydrophobia may find its way to man. (Applause.)

*Conclusion.*

Gentlemen, I have, I fear, detained you too long. In conclusion I have only to say that you are about to enter upon a profession in which it will depend very much on yourselves individually what status you shall enjoy. It is a profession in which you may rise very high or sink very low. The day is past when a man required only to be able to fire a horse, bleed a

cow, and use a drenching horn to dub himself a veterinary surgeon. But if you content yourselves with a servile adhesion to routine—with pouring drugs of which you know little into elaborately-organised beings of which you know less—you will advance yourselves but a small degree beyond the unenviable status of the horse-doctor of bygone days. But you have brilliant examples before you; you have men of education and intelligence to teach you, and you are entering your profession at a time when, in a degree far in excess of any former period, responsibility and power and emoluments are offered by the country to the accomplished veterinary surgeon. If, availing yourselves of your opportunities, you devote yourselves heart and soul to the career before you, not regarding it as a mere sordid means of money-grubbing, but as a mind-expanding and all-important branch of the noble art of the physician, I have no hesitation in saying that in your study and labour you will derive a pleasure, and in your knowledge a sense of intellectual superiority over the unthinking mass around you, which of themselves will constitute no mean reward, which will amply repay you for any lack of that superfluous wealth which so many men set up as their earthly idol, which will entitle you to mix on equal terms with the foremost intellects of your generation, and which will leave you no reason to regret the chance that has directed you to the study of veterinary medicine. (Loud and prolonged applause.)

Sheriff Clark said,—I have been requested to move a vote of thanks to Dr. Cameron, to whom we are so much indebted for his lecture to-day. It has been my privilege, through the kindness of your principal, to be present at almost all the lectures of an introductory kind that have been made in this institution for many years, and I must say that while during that time I have heard many admirable lectures, I do not remember ever having listened to one that was more intelligent—even to a layman such as I am—that was more suggestive and more instructive—that more deserved to receive the highest attention from all present. (Applause.) The learned lecturer has well brought out those facts which show us that veterinary science, that veterinary medicine and human medicine, are only the same things viewed from different points of view, and how impossible it is that either the one or the other can worthily fulfil its purposes and fill its sphere of action if the one is separated from the other. (Applause.) How admirably has he brought out and put into small compass what is now known as regards the germ theory of disease! How clearly has he explained it so that even I, though an unscientific man, can fully appreciate the immense advantages that will follow when the theory of vaccination is wrought out to its full extent. (Applause.) In the remarks with which he closed his lecture he showed great knowledge of mankind, and if you, the younger members present, will only lay your hearts to them I have no doubt that you will rejoice in some future time that you were present at this lecture. (Applause.) I am sure I need say no more, but that you will accord a very cordial and enthusiastic vote of thanks to Dr. Cameron, who, as member for this city, has done everything in his power to further every good work among us. (Loud cheers.)

*Dr. Cameron.*—Gentlemen, I must say you have received my lecture with an attention which was the best vote of thanks that I could have desired. The heartiness with which you endorse the very kind and flattering words which Sheriff Clark has said regarding me is superfluous, and far exeeeds anything to which I have any claim. But I was once a student myself, and I know that very few students knock themselves up with too hard work. (Laughter and applause.) I don't expect that you should do so, but I think that a little work and a little

hard application never yet did a student any harm. (Applause.) As Sheriff Clark has said, I have taken a great interest in veterinary medicine and in the veterinary profession. I have the privilege almost every year of meeting the most distinguished members of that profession in London, and I can tell you this, that the number of Scotchmen among them and of men who have been educated in Scotland is something extraordinary. (Applause.) So remarkable is it that at a great veterinary dinner a hint was given me on no account to allude to the fact, because it would be certain to excite a good deal of ill-feeling and envy among the native Englishmen. (Laughter and applause.) Nothing can be more certain than this, that in no veterinary school in Scotland have you a better opportunity of learning your profession than in this school in Glasgow. I did not like to inquire whether an abnormally large proportion of the Scotch veterinary professors in England were Glasgow men, but I hope that in the future there will be as good cause for remark among the Scotchmen who succeed south of the Tweed as to the inordinate number of Glasgow men of eminence among their number as there is now as regards the abnormally large number of successful Scottish veterinary surgeons. (Loud applause.)

*Dr. Knox* then presented the prizes gained by students during the summer session, and afterwards said: Before I sit down, I have one other duty to perform which is not so pleasant. I must say good-bye to the Veterinary College. It is rather a serious matter after having spent about ten years, if I remember aright, as lecturer on physiology in this college to make such a complete break; but my other professional duties will no longer allow me to continue teacher on physiology here. I can look back with very great pleasure indeed to the days which I have spent in this class-room; and I think that those gentlemen who did me the kindness to listen to my lectures will bear witness with me that we did sometimes good work. (Loud applause.) I have always felt that the veterinary profession should have a very high ideal before it, and I quite sympathise with and homologate the statements which have been made by Dr. Cameron to-day. I think the veterinary surgeon should be even a more scientific man than his medical brother. (Applause.) We medical men have great assistance in the diagnosis of disease in our patients from the fact that our patients can speak to us. They can tell us where pain resides; they can tell us a great deal about the state of the internal organs. But your patients are dumb. You have to find out what is wrong with them entirely by your own scientific knowledge. By your knowledge of animal physiology only will you be able to tell what is wrong, what is diseased, what is pathological. (Applause.) Dr. Knox then introduced to the students his successor, Dr. William Limont, lecturer on physiology in the Western Medical School, a gentleman thoroughly well fitted to discharge the duties of lecturer in the Veterinary College, and concluded by expressing the hope that they would follow Dr. Limont's instructions, and keep constantly before their minds the same high ideal of their profession which it had ever been his endeavour to hold before them. (Loud applause.)

On the motion of *Rev. D. Watson*, the students warmly accorded to Dr. Knox an expression of their gratitude for his services in the past and of their wish for his future prosperity.

*Dr. Cameron* then said: I have to move a vote of thanks to the learned principal for having so worthily occupied the chair on this occasion. (Applause.) To those of you who have been here during former sessions it would be impertinence on my part to utter any commendation of his many good qualities. As for those who are now joining the College for the first time, I have no doubt they have already heard

his praises in many quarters, and that before the session passes over their heads they will have ample reason to esteem him at his full worth. (Loud applause.)

*Principal M'Call.*—I had no intimation that I should be asked to do more than simply introduce the lecturer upon this occasion. I have always endeavoured if possible to secure the presence of some gentleman more or less not only connected with the medical profession, but also with our own, to deliver the introductory address. I am sure those of you who have been in the habit of attending must have been gratified upon all these occasions, and, as has been said, upon no occasion have we derived greater benefit than upon the present occasion. (Applause.) There is only one element that makes me a little sad upon this occasion, and that is parting with my friend Dr. Knox. The doctor, as he says, has been for many years associated with us in conducting a very important department of our studies, physiology, and I know everyone of you feel deeply indebted to him for the service he has rendered to you in the past. (Applause.) He has been a help to all of us, and I must say that personally he has been instrumental in drawing the medical gentlemen of this city closely round the Veterinary College. (Applause.) We part as good friends as we ever were. There is no discord. Nothing of that kind has been the cause of Dr. Knox resigning his position here. It is simply that his own professional duties are so very numerous that he feels he cannot do justice to them and do that justice to the students of the College which he would like. So much satisfied was I with what he had done for us, that I asked him to name his own successor, and he has done so by naming Dr. Limont. (Applause.) Before sitting down, Principal M'Call moved a vote of thanks to Sheriff Clark, who not only came upon occasions such as the present, but who looked in very frequently at odd times, and always with a kindly word of encouragement. (Loud applause.)

The learned Sheriff having acknowledged the compliment, the proceedings terminated.

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## ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

MONTHLY Council, Wednesday, November 7th, 1883, present: Sir Brandreth Gibbs, President, in the chair.

### VETERINARY COMMITTEE.

*Lord Egerton* (Chairman) presented the following report, drawn up by Professor Axe, in reference to his inquiries into the question of abortion in ewes, which had been forwarded by the Secretary of the Lincolnshire Agricultural Society:

"*October 2nd*, 1883.

"DEAR SIR,—In reply to yours to hand on the 30th ult., I beg to say that my inquiry into the question of abortion in ewes is not yet completed. In order to render the investigation as thorough as possible, I have for some time been endeavouring to obtain information from veterinary surgeons and shepherds in different localities as to the prevalence of abortion in various parts of the country other than Lincolnshire. I need hardly

say that my inquiries have not met with that promptness of reply which I could wish, but I hope, shortly, to be in full possession of the information I desire to obtain. For the present information of your Council, I may say that, so far as I am now capable of forming an opinion of the origin of the disease, two factors appear to me to have been specially concerned—viz. long continued exposure to wet, and the exclusive or too free use of roots as an article of food. The first-named cause appears not only to have operated directly by lowering the temperature of the body, and suppressing the function of the skin as an eliminating organ, but indirectly also (1) by exciting and maintaining a painful ulceration of the feet (foot-rot), and extensive inflammation of the skin of the legs and belly, thus entailing acute and protracted suffering and weakness; (2) by rendering the soil so deep, heavy, and slippery, that ewes advanced in pregnancy have suffered great fatigue and constitutional disturbance, while the well-nigh water-logged condition of the land, has compelled them to occupy the standing posture for long periods together; and by thus depriving them of rest, has led, in numerous instances, to a state of exhaustion altogether inconsistent with the retention and maturation of the fœtus.

"The mortality and loss has undoubtedly in all cases been seriously aggravated by the influence of the discharges from the sick on the more healthy portion of the flock, and in some outbreaks there has been reason to suspect that such accidental causes as overdriving and fright have played an active part in producing the mishap. As the breeding season is now commencing, it may be advantageous to the members of your Society if, pending a detailed report of my investigation, I briefly point out what I consider desirable for the better management of the ewe flock in relation to the subject in question. In this connection it is important to remark that the practice of winter-feeding, more or less general in this country, condemns the breeding ewes to subsist exclusively on roots during the most trying months of the year, and over a period when the demands of pregnancy call for a liberal and sustaining diet; nor is it in this alone that the worst feature of our winter feeding exists.

"The custom of restricting the diet of the ewe to the filth-laden 'shells,' or residue of roots, left after the folding of hogs, is even still more to be condemned not only as a fruitful cause of abortion, but of other diseases even more serious and fatal. As a matter of precaution, then, I would say for the immediate guidance of your Society that while as a matter of expediency it may be allowable to continue to fold ewes after hogs as is generally practised, it is at the same time indispensable to the health and vigour of the flock that a fair amount of fresh roots be also given, as well as wholesome dry food, in quantities according to the nature of the season. From the time ewes are placed on turnips to the time when they lamb down, I am of opinion that wholesome dry food is imperatively demanded, and

that disregard of this rule of diet exposes both parent and progeny to many fatal disorders. I would also advise that salt be kept constantly in the fold, so as to be accessible at all times. When the lair is bad, the flock should be removed to higher and drier ground. The practice adopted by many of our best sheep-farmers, of changing the fold for the open pasture once or twice a week, cannot be too highly estimated as a means of maintaining a healthy condition of body and warding off disease. Where foot-rot prevails, the affected animals should be withdrawn from the fold as soon as observed, and placed on dry clean litter, and receive such other treatment and attention as the nature of the case may indicate.

"In my next report I hope to lay before your Society all the more important facts which I have accumulated in the course of my inquiry.—I am, yours faithfully,

"J. Wortley Axe,

"S. Upton, Esq. Professor of Pathology, &c., &c."

The Committee reported that since August, foot-and-mouth disease had spread extensively over the country, and they were of opinion that the present restrictions are inadequate to stop the progress of the disease.

In presenting this report, *Lord Egerton* gave notice that, at the next meeting, he would move for the renewal of the veterinary grant for 1884; and he added that, in view of the notice of motion standing on the agenda in the name of Mr. Jacob Wilson, the Committee had not expressed any further opinion than that the present restrictions were inadequate to prevent the progress of foot-and-mouth disease.

*Earl Cathcart* remarked that there was an article in the Society's *Journal* on the salicylic treatment of foot-and-mouth disease by Sir Edward Kerrison, which, in addition to the paper by Professor Brown, was the only paper relating to the subject of the disease in the *Journal*. He wished to ask Professor Brown whether salicylic acid had, in general practice, succeeded or not.

*Lord Egerton* said he had tried salicylic acid very largely, and had not found any beneficial results attend its use.

*Professor Brown* said that unfortunately, owing to the circumstance that the treatment had not been to any extent tried in this country, he was unable to state whether it had been successful in other hands than in Sir Edward Kerrison's. There was no doubt it had been successful in Germany, and it appeared to have been so in some instances here, but in some cases it had not been tried on the German plan, but in conjunction with certain other agents, which the practitioner thought of equal value. According to the German plan it was necessary to take four tablespoonfuls of the acid, put in an *earthen* vessel, and dissolve in a quart of boiling water, and then add sufficient hot water (which need not be actually boiling), and make up one gallon. With this mixture proceed to treat—

rinse the animal's nose and mouth, and wash the feet, and udders, if affected, adding about a pint of the solution to the daily supply of drinking water, and taking care to thoroughly saturate the litter with the solution. This system had answered in Germany, and in the very few cases in which it had been tried here, he believed. But if this treatment was tried in connection with other agents, it was impossible to say what the total results might be, and he did not hesitate to say that this was not giving the system a fair trial. The Council would remember that they some time ago instituted an experimental investigation into foot-and-mouth disease, and that the Principal of the Royal Veterinary College wrote to the owners of stock suffering from disease, but, generally speaking, he found considerable difficulty in getting a field for their operations. A great many persons did not seem to care whether their animals were treated or not, and in some cases animals had so far recovered on the arrival of a professor from the College, that it was useless to experiment upon them. In this connection he might state to the Council that the circumstance of foot-and-mouth disease being allowed to run its course entirely unchecked by any treatment was positively a new and remarkable phase in veterinary science. People seemed to think that when the disease came into their herd the losses it would cause were absolutely inevitable, and that therefore it was useless to try to ameliorate them.

*Earl Cathcart.*—What would be a dose in the drinking water of each animal?

*Professor Brown.*—The best plan is to take a pint of the solution and pour it into the drinking water which one animal would probably consume in the day.

*Mr. Little* observed that having had a fatal outbreak of foot-and-mouth disease in his own stock, and having, on the recommendation of Professor Robertson, tried salicylic acid, though certainly, in combination with other remedies, he found no benefit from that or the other remedies which were recommended.

*Professor Brown* contended that, in order for the German method to be fairly tried, it ought to be carried out in every particular. Professor Robertson had not adopted the German plan.

*Mr. Randell* said he was quite sure that all the Council would share his regret that Mr. Jacob Wilson was not present to bring forward the resolution standing in his name, more especially as his absence was caused by a somewhat serious illness. However, feeling strongly the importance of Mr. Wilson's proposition, he (Mr. Randell) was confident that the Council would accept it, even without that gentleman's able advocacy. It was worded as follows:—

"That in consequence of the continued prevalence of foot-and-mouth disease throughout the country, the Council desire

again to urge upon the Government the necessity of adopting the recommendation of the Royal Commission on Agriculture:—'That the landing of foreign live animals should not be permitted in future from any countries as to which the Privy Council are not satisfied that they are perfectly free from contagious disease;'—and further, as they are strongly of opinion that uniformity of action on the part of local authorities would rapidly arrest the spread of infection, they wish to press the Government to take the necessary steps to effect this object."

In reference to the first part of this resolution, he would simply say that nothing could be more reasonable than the recommendation of the Royal Commission on Agriculture, and at the same time he was sorry to say that nothing could be more absolute than the way in which that recommendation has been ignored. In 1880 this country was free from disease until September; in 1881, one hundred and forty-three cargoes of diseased animals were landed at different ports; in 1882, sixty-six diseased cargoes were imported; and in the first six months of 1883, forty-three cargoes of diseased animals—with this effect, that during this year more than 200,000 animals had been affected with foot-and-mouth disease in Great Britain and Ireland. Let them consider for a moment what would be the effect if all these animals imported from foreign countries were prohibited, in comparison with all the losses our farmers had suffered. In every instance where these diseased animals were imported we were subject to salesmen, butchers, and drovers, coming into contact with them, and carrying about wherever they went, the seeds of disease. How could they hope, then, to be ever clear from the evil from which so many agriculturists had suffered? If the question were to be looked at only as a consumer's question—which he was sorry to say appeared rather the tendency in many quarters—surely we should get more meat, and certainly more wholesome meat from countries which now send infected animals if the animals were conveyed dead instead of alive. Let them consider also what was the loss to the consumer of home-grown meat consequent upon these diseases. It would not be difficult to estimate the loss of meat from the 200,000 animals; but that was not all; for it should be borne in mind that half-fed meat was hastened to the markets and got rid of, lest it should be infected with the disease. By continued importation of disease the breeding of live stock was discouraged; the consumers of it consequently had less of home-grown meat, and the producers of it were impoverished. With regard to the second part of the resolution, the recommendation that the action of local authorities should be uniform, he thought the Council would be entirely of that opinion. At the same time, one could not help feeling that if the noble President of the Privy Council would only see the effect of this continued importation of foreign disease, he would see also that it was by

that means that so much of the action of local authorities was required. Only stop the importation, and the local authorities' restrictions on an outbreak in any of their districts of foot-and-mouth disease would be comparatively few. The less disease there was, the less this action was required, and the less the farmers of this country would be inclined to complain of the grievances of some of these restrictions. It was because they felt that notwithstanding these restrictions, and in spite of them all, they were still exposed to the action of this disease. At the same time he was sorry to see the farmers in some counties expressing an opinion that they would be better off without the restrictions than with them. That was simply the language of despair, arising from the feeling that after the inconvenience they suffered from the restrictions, they were thrown away, and without the stoppage of the importation of this poison, all these restrictions and all their inconvenience went for nothing. He should be sorry indeed to know that this feeling was spreading; for it could be seen plainly enough that if that feeling were acted upon, coupled with the continued importation, we must simply stop breeding altogether, and it would become a question of disposing of our animals for what they would fetch, rather than risk their infection by foot-and-mouth disease. He begged to move the resolution which Mr. Jacob Wilson had drawn up.

*Colonel Kingscote, M.P.*, in seconding the proposition, observed that he would confine his remarks within a small compass, because he had expressed his views before, not only in that room but elsewhere. It was really a grievous thing to think that foot-and-mouth disease was continuing to spread throughout the country, and that throughout the autum it had prevailed so extensively. Perhaps they might be told that the disease had not been imported from abroad since 1880; but there had been a certain number of affected cargoes arrive, and there was a probability that the disease might have been carried from them about the country. He had seen it stated that an outbreak near Weymouth was caused in this way:—Some foreign cattle came from Portland, and were slaughtered at Weymouth. The manure and the bood from that slaughterhouse were taken on a contract by a farmer some few miles away, the blood was spread over his land, and his animals broke out with foot-and-mouth disease. He believed this story to be perfectly correct, and, if so, it showed that the virus of foot-and-mouth disease was brought from abroad into this country. What agriculturists wanted was that the recommendations of the Royal Agricultural Commissioners should be given effect to; and he, for one, regretted that the Government had not taken steps to carry out those recommendations. As regards the uniform action of local authorities, he thought that also was a necessity. Although England first gave the disease to Ireland, the great source of mischief at the present moment was the animals coming from that country. He maintained that the only way of stopping

the mischief was to adopt the hard-and-fast rule, that where disease broke out, the area round it should be very tightly drawn. The present regulation of half a mile was next to useless. The moment disease broke out, let there be declared an infected area for two miles round it. Mr. Randell had alluded to the fact that in some parts of the country the farmers were almost in open rebellion, and one could hardly wonder at it. But he would ask them to have a little patience. The chief constable of Cumberland and Westmoreland presented a report lately, showing what these counties had saved by the restrictions put upon them. In his own county (Gloucestershire) they had been free all the autumn, though they had a very difficult place to contend with, viz. the Bristol market; but the Gloucestershire local authority prohibited any animals coming into the county from that market without first undergoing quarantine. Although the farmers were suffering very much—he himself was suffering—in consequence of being unable to buy young stock, yet they were all thankful to the local authority for having placed restrictions on the movement of cattle, and so prevented the disease coming into the county.

*Mr. Wakefield* said that being identified with what he might call the Cumberland and Westmoreland system, he might be allowed to say a few words. It might be taken for granted that a great deal of disease was coming from Ireland, and that the disease was introduced into it from England, but if there had been uniformity of restrictions, the disease might have been speedily stamped out. It seemed that during the present year forty-three cargoes of diseased animals had arrived at English ports, and therefore there was grave suspicion that disease might have been re-imported into this country from these importations. But he certainly thought that a great deal might be done by uniformity of regulations. The advantage in Cumberland and Westmoreland had been very considerable, but while subjecting themselves to grave restrictions, and succeeding in keeping clear of the disease, they felt it to be a hardship that other localities should be so careless in the matter, and thus the inconvenience was kept up. If they applied common-sense to outbreaks throughout the country the disease might be got into a very small compass, and the distressing inconvenience might be avoided. The Privy Council had given full powers to the local authorities, and the need was that these powers should be exercised. If the local authorities refused to exercise them, the Privy Council should step in.

*Mr. Little* said it was admitted on all hands that for the future prosperity of agriculture in this country, breeding of stock of all kinds was of paramount importance. That being so, he should like to ask how, under present circumstances, it was possible to increase breeding stock. This year he had been able to breed something like fifty head of cattle; some fifteen head of these had succumbed to the disease. Next year, in consequence

of cows slipping their calves and other losses due to the disease, he should reduce the number to thirty; and the following year probably to twenty. He believed that Professor Brown, and most gentlement connected with veterinary science, would tell them that it was possible to stamp out foot-and-mouth disease. He asked, If it could be done in this country, why could it not be done in those countries from which we obtain this disease? Let them show that the disease was stamped out, and England would be willing to take their stock. Great surprise was expressed from time to time that certain counties did not submit to restrictions; but it must be remembered that farmers in those counties had to pay their rent, and that could not be done if they were unable to stock their land, and sell them when fit for market. Notwithstanding the Society's previous failures by deputations to the Government, he hoped they would be influenced by the resolution of to-day.

*Lord Egerton* remarked that the Government say that under the present Act they were unable to prevent the introduction of live animals from abroad, except as a temporary measure, but he ventured to think that this was not a sound argument, for they have shown that it can be done in reference to France. He thought that the Government would be perfectly justified in doing to other countries what they had done to France, and, if necessary, call for an indemnity at the beginning of next session. He believed that the tone of despair and the chafing at internal restrictions, was because the farmers felt that unless the disease was kept out, these restrictions were useless. At the same time, he believed this feeling did not exist in all counties—not in Cheshire, for instance, where the restrictions had been loyally carried out.

*Mr. Dent* knew he represented a minority of one on this question, but he would be wanting in moral courage if he heard all the remarks which had been made without entering a protest. He looked upon the statements as to losses by foot-and-mouth disease, and the figures put before them, as to a very great extent exaggerated. He could speak decidedly as to a large portion of the West Riding that to be prevented by restrictions from getting cattle at this moment would be far more serious to farmers than the importation of foot-and-mouth disease. He was sorry to say that foot-and-mouth disease was spreading at this moment in the West Riding, and was likely to spread for the next few weeks; but he thought that the feeling of alarm about the disease was not so widespread as the Council and some other bodies seemed to think. He knew farmers who bought cattle from the York market, but, although affected with the disease, he believed there was scarcely a case in which they were treated by a veterinary surgeon or anybody else. He did not believe that the ordinary grazier had the dread of foot-and-mouth disease which seemed to be felt by others. It was not within his experience that farmers gave up

breeding on account of disease, the reason being that it was found more profitable to buy grazing stock from Ireland. He thought they should be very careful about urging the Government to impose uniform restrictions, which would be strongly objected to in grazing districts.

*Mr. Ashworth* considered that Mr. Dent's speech would be most dangerous, and be quoted by many people on the opposite side, and be made more use of than even Mr. Dent intended. In the district in which he (Mr. Ashworth) lived—in Cheshire—a petition was got up and signed by nearly two thousand farmers, in three days, to pray the Government to impose the restrictions desired by Mr. Randell's motion. It was now quite time to apply another lever to the Government.

*Lord Feversham* thought it very necessary that the representation proposed should be made to the Government. Could not the Goverment institute a more efficient system of inspection at markets? He understood that very often the inspection was very inadequate.

*Professor Brown* said that before the resolution was put there were one or two points upon which the Council should be informed. Of course it must not be forgotten that anything coming from the Royal Agricultural Society attracted very considerable attention on the part of the Government, and it was very unfortunate when anything was asked which could not be granted, or if anything was asked for under a misapprehension. If the Council went with this proposition to the Government they would be asked what they meant by the term "contagious" —whether they meant foot-and-mouth disease, or used the term as it was employed in the Act. If the latter, they were asking that all live animals from exporting countries should be stopped because there was no exporting country that was free from disease. Consequently they were asking the Government to supersede the present Act. This the Privy Council had no power to do. All the Privy Council had done was to prohibit, in the case of France, and previously in the case of one of the Spanish or Portuguese ports, to prohibit temporarily the landing of animals on account of foot-and-mouth disease. That was fully within their powers. But when they asked for the prohibition of the importation of all animals from countries as to which they were not satisfied, and when it was known that there is no country as to which the Privy Council was satisfied, there was positively no country which would come under the exception, and therefore they were asking the Government to legislate, and not to carry out the law. His conviction was, that if British farmers wanted to protect themselves from the introduction of foreign diseases as completely as possible (nothing could give absolute protection, for infected material might be conveyed in a variety of ways), there was no alternative between the present system and the absolute prohibition of the importation of all live animals. Intermittent and occasional prohibition was pure

delusion as to giving protection. As to uniformity of regulations, the Privy Council were utterly powerless to effect this. Moreover, the feeling of the country would be absolutely opposed to the Privy Council taking the initiative and imposing sufficient restrictions. Memorials were being constantly sent in to the effect that the restrictions are extremely embarrassing, and that they ought to be at once revoked. He was quite aware that many owners of store stock regarded the disease as a trifling matter, but he was also aware that to owners of breeding stock and fat stock it was a terrific calamity. Foot-and-mouth disease was quite as contagious—quite as easily spread—as cattle plague, and if they said that it was more economical to stamp out cattle plague by slaughter, that was the remedy for any disease they wished to get rid of. The restrictions already made had not been in the direction of stamping out; they had been merely restrictive, intended to moderate the extent of the disease, and they had produced that effect. In conclusion, Professor Brown stated that the Privy Council could not insist upon inspection of markets. The local authorities were empowered to appoint inspectors for such purposes.

The proposition was then put to the vote, and carried unanimously, and the President was asked to forward it to the Lord President of the Council.

The report of the Committee was adopted,

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## CENTRAL VETERINARY MEDICAL SOCIETY.

A MEETING of this Society was held on the 1st of November at Red Lion Square, Professor Pritchard presiding. The following Fellows were present: Professor Axe, Messrs. T. Burrell, T. G. Batt, H. W. Caton, G. R. Dudgeon, W. Roots, F. W. Wragg, J. Woodger, A. Broad, J. H. Brown, J. Rowe, Arthur Broad, C. Sheather, T. G. Chesterman, H. K. Shaw, and William Hunting.

*Professor Pritchard* addressed the Fellows as follows:—

Gentlemen,—Though I have felt great interest in the success of the Central Veterinary Medical Society, I have as yet done little to help it beyond an occasional attendance, but I intend to do more. As you have honoured me with this post I promise to do my utmost to make the Society's meetings interesting and profitable. My time is much occupied, but some of this time shall be sacrificed to enable me to fulfil the duties of my position worthily.

On an occasion like this it is usual for the President to make an address. Some dwell upon the year's work, some on the work accomplished by certain individuals, others enlarge on veterinary politics. I take neither of these topics for my theme, but one or two subjects which seemed to me suitable for bringing before you, as they are fit matters for discussion. One of them will, I

have no doubt, provoke discussion; on the other point I expect more unanimity of opinion. I have before now taken occasion to express my opinion that we are, beyond all others, our own enemies. Among veterinary surgeons there is far too little of that good fellowship and single-mindedness which should exist among members of a common profession. It should be the privilege of veterinary societies to do away with this state of things; by fairly and openly discussing subjects we should smooth away all differences arising from prejudice. Such an amount of discord is not to be found in other professions. However lawyers may differ from one another professionally, they are always ready to extend the hand of good-fellowship when outside the precincts of the courts. I hope to see more of this state of mind exhibited in our profession, and during my year of office it shall be my endeavour to promote such a desirable cordiality.

Of the two subjects I touch upon, one there is, as I have indicated, which will cause a difference in the opinions expressed, though I think this ought not to be; I allude to the docking of horses.

I throw down the glove with good feeling, and hope for fair discussion, and a free expression of opinions. I look upon docking as an act of cruelty, and as the attention of the profession all over the country has been drawn to the question, I wish to enter into it completely. With my present audience it is of course unnecessary for me to enter into details as to the manner of operating, but I will proceed to review the arguments that we hear in favour of it. Firstly, it is said that horses are more likely to get a long tail over the reins than they would a docked one. At first sight this appears a potent argument, but we should bear in mind that the long tail is in a natural condition, while the short stump is abnormal; the tail naturally tapers, and is, if let alone, elastic, its basement structure above being bone while becoming cartilaginous towards the extremity. Now, if an undocked horse gets his tail over the rein, the flexibility of the tail allows of his removing it almost instantaneously, but if a short dock is put over the rein, so little command has the animal over it that he cannot easily liberate the rein, but, instead, forcibly holds it down. We may take it as certain that a horse which has been docked has less power of free motion in the tail than has the undocked horse. Can anyone say that less accidents take place with docked horses? Of course I mean comparing an equal number of docked and undocked horses. I maintain that comparatively more accidents occur with horses which have been docked. Not only is the tail slow in healing, but the tip remains very sensitive for months. This is a fact very evident to those who have lost a finger, or have suffered amputation. Next it is said that in the hunting-field a long dock is objectionable; it throws mud and dirt over one, soiling the clothes; and in such a case what is to be resorted to but docking? I say that if there is a horse which will do this to any extent after the long hair is

cut off, it is a rare instance, and such an animal should be left at home. Then as to cart-horses, what reason can be adduced for docking them.

It may be asked, are there any cases in which docking is justifiable? Certainly; as when we meet with melanotic tumours near the extremity of the tail; or in such a case as I recently operated upon, where the tail was denuded of hair, and a sore had been produced on each side of the tail from the animal's habit of "whisking." Then we may have a broken tail interfering with defæcation. But this I say, that in the majority of instances in which docking is had recourse to, it is unnecessary, and, as in this matter I appear to stand alone, I have brought the subject before you for discussion.

It appears to be considered that the point has only very recently been made a subject for legal decision, but the fact is that convictions for this offence have been obtained so long as five years back, and more cases will ere long be brought into court. Again, it need not be supposed that appeals against an adverse decision will meet with success; it has been attempted, and Sir Fitzroy Kelly, on one occasion, which I have in mind, refused to reverse the decision of the lower court.

The other point on which I desire to touch is connected with the working of the Contagious Diseases (Animals) Act. If we have a patient affected with glanders outside the authority of the Metropolitan Board of Works, and circumstances do not allow of its being buried, we are bound to get the permission of their Inspector before the carcase can be taken to a London slaughter yard; and not only this, but we must take it to one specified place, although another, which we may have reason to prefer, should be situated within a very few yards of the favoured slaughter-house. This is not the case if the horse is at a place within the Metropolitan boundary, for then we have the choice of several slaughter-houses. Outside this boundary we have to obtain the permission of the local inspector, as well as that of the inspector appointed by the Metropolitan Board of Works, before we can convey the carcase into London; this occasions great inconvenience. I have not the slightest complaint to make against the inspectors individually, but I shall not let the matter rest, but bring it to notice in another quarter.

At the President's suggestion it was decided to discuss the subjects separately in their order.

*Professor Axe* said that on this subject of docking he thought that there was no doubt that the President did stand somewhat alone. Cruelty, he said, signified the infliction of pain wantonly and unnecessarily; now, is it to be said that veterinary surgeons are, as a body, so lost to humanity as to be wanton inflictors of cruelty? Are we to understand that causing pain unnecessarily is cruelty? If so, then we often offend. What shall we say of neurotomy? Sensation is removed by the operation, and pain diminished; but at what cost? we lead to the death and destruc-

tion of the animal. If docking is to be considered cruel, neurotomy, he said, is ten times more so. He then asked, were there no other reasons for docking than those just adverted to? It certainly improves the appearance and thus the value of the horse—a very mercenary idea, it will be remarked, but he was not, he said, so weighted with sentiment that he could not allow the commercial view of the case to have its due value. It was to be remembered that English horsemen judge of horses as they have been accustomed to see their points. It may be rejoined that our view has become distorted, but if so, it has been by the force of circumstances, and many years would pass over his head before he could relinquish his preference for present ideas. As to the prevalence of accidents could it be laid down as a fact, that among a hundred docked horses, more accidents would be found to occur than among an equal number of horses undocked; on this point nothing short of statistics were of any value—a mere statement was no proof, and had no weight. As to the remark of the President that the shortened tail could not be so easily freed from the rein, he said it would depend on who was driving; an expert would more quickly disengage the rein from a docked tail. It may be true, he said, that there was more flexibility in an uncut tail, because its more flexible portion had not been removed; but the docked tail had not the same power of covering and fixing down the rein that the long tail possessed.

He then pictured the state of the man in the hunting-field, who might be mounted on an undocked mare which was in a state of œstrum, or on a horse with inordinate tail action, also of the unfortunate rider of such animals should he have elected to wear a frock coat at any time.

The long retention of a certain degree of sensibility after amputations was a known fact, but neither this, nor the operation itself, involved much pain. He detailed the structures divided, and said that they possessed a low degree of sensation. He would be glad to see horses have the free use of all their members, if practicable, and would leave them their tails if the removal of them could not increase the animals' comfort, value, or power of being safely used, but he would not do anything to lessen the value of horses without good reason.

*Mr. Sheather* said he differed from the President with regard to his views on this question, and he wished merely to give to the meeting a few facts—facts which he had heard over and over again in the course of his own experience. He adverted more especially to team-driving, and agreed with the President's remark that the long normal tail possessed great flexibility, but said he found that just for that reason it was more likely to get over the rein; the docked tail, moving more rigidly, merely knocked the rein on one side. Then when the undocked horse gets his tail over the rein, it frequently cannot be got back, for the animal will curl his tail in and hold the rein fast; but it was not difficult, he said, to free the rein from the shortened tail.

He had on many occasions done this from the box. It must be noted from which side of the tail the rein was got under, and then "break the team" accordingly. He quoted an instance of a mare, undocked, getting her tail over the rain; the guard of the coach could not extricate it, and the mare getting excited, the team bolted, running for three miles. In another similar instance the coach was upset, and several passengers seriously injured. He was sure that in either case the rein could have been freed if the horse had been docked. The short, stumpy tail of the docked horse cannot be curled under as can the tail in its normal state. He quite endorsed the opinion of the President as to the importance and necessity of cultivating a friendly feeling in our mutual relations, and of fairly discussing questions such as the present. It was greatly a matter of pounds, shillings, and pence, the pain involved being but slight if the operation were properly performed. He did not now dock, but he considered that if any member of the profession were attacked for docking horses it would be but a proper expression of good professional spirit for other members to abstain from appearing against him. He then referred to the great number of injuries to the tails he had seen among cab- and van-horses.

*Mr. Hunting* said he was surprised to hear the last speaker say he would not dock a horse, while at the same time urging the necessity of the practice. The question was, is there sufficient justification for the infliction of the pain? Several reasons had been brought forward to argue the necessity of docking—that of the splashed coat, frock, or otherwise, would hardly be considered formidable, but the danger incurred in driving undocked horses in certain circumstances might hold. He would admit that there was but slight pain caused in the operation, though some after-pain was certainly felt. Shortened tails, he considered, were as apt to be whisked over the reins as long ones. The operation was, he said, undoubtedly done to suit popular prejudice. As to giving evidence, he should not consider it a duty to refuse to give his opinion against any one if the facts warranted him in doing so; such a thing was frequently done by professional men in cases of divergent opinion. He would think it a bad point in the profession to see a spirit of trades'-unionism arise,

*Mr. Rowe* asked what operation might not be classed as cruel by the opponents of docking? Certainly he thought gelding should be equally decried; in France this operation was not resorted to, and he could not but admire their horses. Many of the minor operations on dogs might with justice be put an end to. He considered length of tail constituted an element of danger in driving, and that docking was necessary, though not to such an extent as may be seen practised on many hunters. He thought the length of portion removed had some bearing on the question.

*Professor Pritchard* considered no analogy could be drawn between docking and gelding; our class of horses differed from

continental, and required different management, or our streets would, he said, be rendered impassable. He could not but admire Mr. Axe's reasoning, but did not fail to read between the lines. The £ s. d. argument might be applied to the veterinary surgeon; it was frequently said, "If I do not operate, others will." He remarked that race-horses were not docked, and said there must be a reason for this. With regard to getting the reins under the tail, he would not ride with a man who would allow this to happen. (*Mr. Sheather:* "Will not horses stumble, stop, or shy?")

*Professor Pritchard* said he could not see any necessity for the rein to be caught by the tail. He agreed with Mr. Hunting's remarks on appearing in the witness box; besides this, if subpœnaed, one was compelled to appear and give evidence.

*Mr. Burrell.*—"Suppose you had not seen the animal?"

*Professor Pritchard* said it was compulsory to give an opinion; he would qualify this by observing, that before giving *expert* evidence you can demand your fee; but on simple matters of fact you must submit to be sworn, and give your evidence for the ordinary legal allowance.

It was proposed by *Mr. Wragg*, and seconded by *Professor Axe*, that the remaining subject should be discussed at a future meeting.

The meeting terminated with a hearty vote of thanks to the President. ALFRED BROAD, *Hon. Sec.*

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## ROYAL VETERINARY COLLEGE MEDICAL SOCIETY.

THE annual meeting of the above Society was held in the theatre of the College on Monday, October 8th, 1883. The President, Professor Robertson, occupied the chair. There were present a large number of members and visitors.

After the election of new members, the President addressed the meeting at some length. He enlarged on the individual and mutual advantages of such societies, and in a general manner reviewed the principles on which committees and individuals are related to each other. The meetings of the past session had always been sources of pleasure and profit to himself. He looked back on the past of the Society with satisfaction, and on its future with cheerful hope. The past had proved to them what could be done; the future was to be largely of their own making.

In order that the maximum of benefit might be gained, every one should come to the meetings specially prepared on the subjects to be brought under discussion. The freest expression of opinion on matters brought forward was always to be main-

tained, and everybody's opinion was entitled to respect. The veriest tyro in medicine had an equal right to hold and express his views with the grey-haired veteran, as long as they were supported by facts. We must remember that medicine is not an exact science. Egotism and selfishness would be decreased in us, as we met oftener under such circumstances as the meetings of the Society afforded opportunity for. He was thoroughly convinced of the usefulness of the Society, and it had his warmest sympathies.

The Secretary then read his report:

MR. PRESIDENT AND GENTLEMEN,—It affords me very great pleasure to offer you a brief report of the proceedings of your Society during the past session, for I regard the retrospect as rich in matter for congratulation and encouragement.

The origin of the Royal Veterinary College Medical Society is so well known to the majority of you that the narration of any details relative to its formation and the principles on which it is based would be irksome and superfluous. Suffice it to say, for the benefit of any new-comer amongst us, that the "reason to be" of such an institution was in the expressed wishes of the students of the Royal Veterinary College. This want of a Medical Society, one in the government of which students, being constituent parts of the Society, should have a voice and vote, being made known to the Principal, Professor Robertson, as the wish of many whose conduct had proved their discretion and zeal in prosecution of that search for knowledge, met with that cordial approval and promise of support which are ever vouchsafed to anything considered likely to conduce to the comfort and advancement of students of the College.

After a series of meetings of teachers and students, the Society was founded on the basis set down in the book of rules, a copy of which is presented to each member. The objects of the Society are "the mutual improvement of its members, particularly to facilitate and encourage amongst them the study of medical science in all its branches." The government is in the hands of a committee composed of the teachers and the student members, chosen with a regard to the representation of each class at the annual meeting.

At the first meeting Professor Robertson was chosen President of the Society, and every one who was privileged to sit under his presidency will, I feel confident, agree with me that, if time and ability permitted, too much could not be said in praise of the countenance and mere material support which he has bestowed on the Society. The success of the meetings, every one of which the President attended, is in a very large measure due to the information and interest imparted by him. At the same time the honour was done me of being elected your Treasurer and Honorary Secretary. As regards the duties of the former office, they have been trivial, and the accounts which

are to be audited under your direction will show a good working balance in favour of the Society. The latter position, Secretary, has proved no sinecure, but the consideration and co-operation of every member have rendered easy and agreeable as possible duties which, under other conditions, might have proved tedious. The assistance rendered by Mr. W. H. Blaye, who was chosen Assistant-Secretary, has been of the most substantial character. I beg now publicly to thank this gentleman whose efforts for the advancement of the Society cannot be too highly eulogised.

On the representation of a deputation introduced by your President, the governors of the Royal Veterinary College have kindly placed at the Society's disposal a place for holding meetings, and intimated that when sufficient evidence of the solidity of the establishment has been given them, that other substantial aid shall be forthcoming.

At the first general meeting the following gentlemen were elected by ballot as a committee, with the teachers, being members of the Society, to manage its affairs:

Messrs. E. W. Baker, Harvey, Pemberton, Snowball, Hartley, Blenkinsop, Oliver, Morton, Parr, Haydon, Hazelton, and W. R. Walker.

In the same manner the following were chosen to act as Vice-Presidents:

Messrs. E. W. Baker, Blenkinsop, Parr, Morton, Hartley, Snowball, and the Assistant-Secretary, *ex officio*.

It was decided that prizes be offered for competition on the subjects to be named when reading the list of awards.

During the second Winter term there have been eleven ordinary general meetings of the Society at which fifteen post-mortem specimens have been introduced, and nine essays read and debated upon. These meetings have been attended on an average each night by twenty members and four visitors. Nine fellowship certificates have been awarded for essays written and defended, and in addition eight certificates of membership to gentlemen now holding the diploma of the Royal College of Veterinary Surgeons.

There are the names of fifty-four gentlemen who have sought election, but as fifteen of these have omitted to pay the amount of their subscription, they cannot, until this condition has been complied with, be admitted to the full privilege of membership.

Gentlemen, much doubt has been exhibited as to the possibility of carrying on a society largely managed by those holding the position of students. For my own part I am convinced that what is pronounced by some an unwise concession is only a right, and am hopeful that it will prove a help in approximating an imaginary gulf existing between the reasoning powers of gentlemen who sit on those benches, and those of others who have come into actual possession of that coveted document, the diploma of the Royal College of Veterinary Surgeens, whose power to grant

dignity and reason with the signatured document I am somewhat sceptical about.

If I may so express myself here, I would say few men require to possess more self-reliance and decided well-founded opinion than he the exercise of whose profession calls him to cut down within the hair's breadth of a fatal mistake, to commit off-hand in writing his opinion as to the soundness of a valuable animal, or to stake his reputation on deciding whether a certain action under his control will admit into a country a devastating contagious disease, and its widespread loss to the community, and their odium on him. The acquirement of business habits, of the power of dealing with range of matters, of the ability to express one's ideas intelligibly in public, can only be brought about gradually, and demand that we should educate our resources. To have a share in the management of such an association as ours directed by the counsel of those to whom age and experience have given the qualification to advise, is, in my opinion, likely to be fraught with advantage to those who devote their time to the work, and with benefit to the Society. It is too lately that I sat on the other side for me to have forgotten that all requirements and wishes of students are better and more fully known to those who are actually experiencing them than to their teachers whose position and duties render such knowledge impossible to them from any other source.

The interest evinced in the meetings by one and all is in itself a sufficient guarantee that the matter which occupied the attention of the members was valuable and appreciated, and augurs well for the future of the Society. The post-mortem specimens afforded scope for original work and hearty discussion, which cannot fail to benefit all who engage themselves with them. The investigation of some cases of sarcoptic mange with demonstration of its transmissibility from horses to man, and the conclusions arrived at from inquiry into those of disease caused by *Strongylus ichacanthus*, especially respecting some phases of development of the parasite, must always rank high among the benefits which accrue from such gatherings. The essays brought forward have without exception given evidence of willingness and ability to deal with important ethical and scientific matters. The discussions have been well sustained, and the points raised well defended. The utmost unanimity and kindly feeling have been evinced throughout, and one ventures to think that the object of those who watched and worked for the establishment of the Society has been attained. And, gentlemen, it remains for you, who are now its members, to sustain and to enlarge its sphere of action and influence as opportunity occurs. Those who have left us to commence their struggles in other paths of duty will be missed, but they have left us a cheering legacy, and the consolation and encouragement of the reflection that those whose judgment bid them to strike out this line which your discretion induces you to follow

in have, by the use of the self-same reasoning power in directing them to sources of information, attained that possession which it is the aim and hope of every one of you to do.

The list of awards was then read, and the President distributed the prizes and certificates.

*Certificates of Fellowship to*

Mr. J. G. Parr, of Leicester, "Cruelty to Animals."

Mr. Layton J. Blenkinsop, of Hilldrop Crescent, N.W., "Influenza."

"Mr. Martin Robinson, of Budwell Barns, "Tetanus."

Mr. G. T. Pickering, of York, "Nervous Force, Instinctive and Volitional."

Mr. E. Hazelton, of Southampton, "Veterinary Sanitation."

Mr. E. Whitley Baker, of Portsmouth, "Colic."

Mr. W. Harvey Bleye, of Plymouth, "Communicability of Disease from Animals to Man."

Mr. C. W. Page, of Banbury, "Castration."

Mr. J. J. Twiss, "Parturient Apoplexy."

*Certificates of Membership to the above and*

Mr. James Daly, of Dublin.
„ T. Pottinger, of London.
„ John Merton, of Worcester.
„ Charles Hartley, of London.
„ John Sutcliffe Thurndall, M.R.C.V.S., of Liverpool.
„ R. Bull.
„ Henry Sumner, M.R.C.V.S., of Liverpool.
„ Robert Hill, of Leek, Staffordshire.

Thanks of meeting to the President, Messrs. Blenkinsop, Morton, Bleye, Robinson, Page, and the Secretary for post-mortem specimens.

*List of Prize Awards.*

The best essay read and defined at general meetings, given by Professor Robertson:

*Silver Medal.*—W. Harvey Bleye, for Essay: "Communicability of Disease from Animals to Man":

*Bronze Medal.*—J. G. Parr, for essay on "Cruelty to Animals."

The best preparation anatomical of fore limb of any of the domesticated animals. No competition.

The best essay on the natural order "Umbelliferæ" (A. Class):

*Silver Medal.*—W. R. Walker.

The best essay on "Veterinary Sanitation." No award.

The highest number of marks at written and *vivâ voce* exami-

nation on all subjects included in the whole curriculum of education at Royal Veterinary College :

*Silver Medal.*—E. Whitley Baker.

On the motion of Mr. Harvey, seconded by Mr. Snowball, the report was adopted.

Votes of thanks to the President and Hon. Secretary brought the proceedings to a close.

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## YORKSHIRE VETERINARY MEDICAL SOCETY.

The last quarterly meeting for the year 1883, was held at the "Queen's Hotel," Leeds, on Thursday, the 18th of October, the President, Mr. J. M. Axe, in the chair.

The following members were also present, viz. Messrs. Naylor, Greaves, Jas. Freeman, J. S. Carter, J. W. Anderton, W. G. Schofield, Josh. Freeman, Peter Walker, J. H. Ferguson, Scriven, Lodge, Whitehead, Toop, A. W. Briggs, G. T. Pickering, Greenhalgh, and the Secretary.

Messrs. Rowe, A.V.D., 11th Hussars, P. Carter, M.R.C.V.S., and Messrs. Somers, Kendell and Sweeting were present as visitors.

Apologies for non-attendance were received from Messrs. Dray, Danby, Hardie, Bale, B. Smith, and Parlane Walker.

The minutes of the previous meeting were read and confirmed.

The *Secretary* proposed, and *Mr. Freeman* seconded, the election of Mr. Geo. T. Pickering, York. Carried unanimously.

The *President* proposed, and *Mr. J. S. Carter* seconded, the election of Mr. Chas. J. Reynolds, Mansfield, Notts. Carried unanimously.

The *Secretary* proposed, and *Mr. Josh. Carter* seconded, the election of Prof. J. Wortley Axe, as an Hon. member of this Society. Carried unanimously.

The *Secretary* nominated Mr. F. Percy Carter, Bradford.

The President, the Treasurer, Mr. J. W. Anderton, and Mr. W. G. Schofield, were appointed as a deputation to represent this Society at the inauguration of Prof. Williams' New College premises in Edinburgh, on the 24th of October.

The subject of the Field bequest having been introduced by the *Secretary*, Mr. Greaves explained the latest steps taken by the Council regarding the purchase of new premises, and the amount of subscriptions promised, &c. Messrs. Freeman and Anderton urged the members to subscribe to the fund in a liberal spirit; after further discussion, Mr. Greaves gave notice of motion, "That at the Annual Meeting in January next, he would propose a grant of Fifty Pounds from the funds of this Society towards the Building Fund of the R.C.V.S.

Mr. Greaves made a few remarks as to whether the existing practitioners should be admitted members of Veterinary

Societies, but as Rule I. of this Society limits membership to graduates of a Veterinary College, no discussion was necessary.

Mr. A. W. Briggs read a paper on "The Docking of Horses' Tails," in which he drew attention to the fact that, by prosecutions and otherwise, the Society for the Prevention of Cruelty to Animals had expressed a decided intention of putting a stop to this practice. It was obvious, therefore, that, with this end in view, the society had obtained a footing upon our platform and he (Mr. Briggs) thought it would be wise for us, as a profession, either to extend the right hand of good fellowship and sympathy and help it onwards, or show a firm front and prevent, if possible, the invasion of our territory.

At any rate, he thought the time had arrived for the ventilation of this subject through our various channels of communication; when veterinary surgeons as a body, and as individuals, need not hesitate to say "yea" or "nay" to the importunities of their clients with a full knowledge of acting lawfully and humanely. He argued that, from a strictly anti-cruelty or extreme humanitarian point of view, there could be neither legal nor moral defence to the operation of docking, but that, by blending humanity with utility; by exercising a fair measure of common sense; at the same time ever keeping in view the subservience of animals to man, and the safety of mankind, that docking, in many instances, became a justified operation.

He further argued, that because "animals were given us to use and not to abuse" it did not of necessity follow that we were to use them in precisely the same anatomical condition in which nature presented them to us; otherwise, there would be no justifying castration—an operation that even the most extreme humanitarians hesitated to attack. And why? Because humanitarianism must, in such instances, give place to utilitarianism. Yet we all knew of entire horses in daily work in almost every town and village throughout the country; at the same time we readily admitted that, by emasculating these animals, we rendered them, from the standpoint of safety to mankind, more subservient to us.

So, likewise, we all knew of undocked horses in daily work throughout the country, yet we were obliged to admit that by docking these animals we reduced the liability to accidents.

Mr. Briggs went on to say that, as a profession claiming the motto *Humanitas, scientia, utilitas*, we had for years performed the operation of docking and our students had been instructed therein at the teaching schools and subsequently examined therein. Consequently, one might have concluded that the operation was humanitarian, scientific, and useful.

Finally, he contended that there existed a great liability to accidents in the use of undocked horses—more particularly in the use of harness horses—and that the degree of safety, guaranteed by amputation, more than counterbalanced the amount of pain inflicted, and justified and made lawful the operation.

*Messrs. Greaves* and *Jas. Freeman* thought the operation caused unnecessary pain and that we were acting against the provisions of nature, &c.

*Mr. Schofield* thought the pain attendant upon docking very small as he used pressure to arrest the hæmorrhage.

*Mr. Rowe* was of opinion that Veterinary Surgeons should have the discretionary power to decide when the operation was necessary. He applied a pledget of tow soaked in zinc. ferri perchlor. to arrest the hæmorrhage, with the very best results, and he therefore thought the attendant pain was reduced to a minimum.

*Messrs. Anderton, P. Walker, and Ferguson* were of opinion that Veterinary Surgeons, as scientific men, were quite capable of performing the operation in a scientific manner almost without pain.

*Mr. Walker* wished to know if a newly-docked horse could be considered sound.

*Mr. Toop* said he had attended three cases of Tetanus, arising from docking performed by other persons, within the last twelve months; had also attended a case of fibroid inflammation of the tail arising from docking.

The *President* had docked hundreds of horses, and was of opinion that the attendant pain was very little.

*Mr. Naylor* was of opinion that we were perfectly justified in performing this operation when necessary and useful.

After some further discussion, *Mr. Schofield* moved, and *Mr. Josh. Carter* seconded the proposition, "That, in the opinion of this meeting, the operation of Docking Horses' Tails, performed in a scientific manner, is perfectly justifiable, and not necessarily cruel." 12 for, 2 against.

*Mr. Naylor* exhibited an interesting morbid specimen of fractured os pedis; also related an instructive case of intestinal tumour.

The *President* proposed, and *Mr. Carter* seconded, a vote of thanks to Mr. Briggs for his kindness in introducing a subject for discussion. Carried unanimously.

The *Treasurer* submitted the financial statement, showing a balance in hand of £130. 14s. 10d.

The election of officers for 1884 resulted in Mr. Parlane Walker being unanimously elected the President; Messrs. J. M. Axe, Ex-President, Anderton and B. Smith, the Vice-Presidents; the Secretary and Treasurer were re-elected.

The *Secretary* proposed, and *Mr. Naylor* seconded, a vote of thanks to the President for his efficient conduct in the chair during the year. Carried unanimously.

Refreshments by invitation of the Leeds members were provided at the conclusion of the business.

WM. BROUGHTON, *Hon. Sec.*

# LINCOLNSHIRE VETERINARY MEDICAL SOCIETY.

The quarterly meeting of the Lincolnshire Veterinary Medical Society was held at the Peacock and Royal Hotel, Boston, on Thursday, November 1st, the following gentlemen being present:—Captain Russell, Grantham, president, in the chair; and Messrs. Carless, Lincoln, secretary; W. G. B. Dickinson, Boston; Hoole, Heckington; Mackinder, Peterborough; Runceman, Market Deeping; Wyse, Donington; and Whitworth, Grantham.

The Chairman expressed his sorrow that there was not a larger attendance, but said that no doubt he and the secretary were to blame because more gentlemen were not present. It had escaped their memory that the previous Thursday was the last Thursday in the month, and the one on which their meeting should have been held. Having discovered their mistake they made all haste to hold the meeting as soon as possible, and no doubt the alteration in the date had been inconvenient to some gentlemen, and had prevented their attendance. He and the secretary would take care that such an error should not occur again whilst they were in office. He hoped their meeting would be an interesting one, and that the paper they were to have at the hands of Mr. Whitworth would give them sufficient reward for their presence.

The *Secretary* then read the minutes of the last meeting, and they were confirmed. He said that with regard to Mr. Batchelor's proposition, made at their last meeting, respecting unqualified men being allowed to hold the appointment of inspectors; he had received a letter from Mr. Fleming asking him not to press the resolution but to hold it over for a while, therefore he had done nothing in the matter, and as Mr. Fleming had promised to see into it him himself, he thought they would be justified in holding it over until their next meeting, when they might have the question decided. Mr. Fleming had promised to bring the matter before the Privy Council himself, and that was the reason why he did not want them to press the resolution.

The *Chairman* observed that at a meeting of the Midland County Society held at Leamington on the 20th of September, this matter was brought forward, and a large amount of discussion took place, and a quantity of correspondence was read, but nothing was done in the question.

*Mr. Mackinder* said that the Act of Parliament only gave local authorities power to appoint a man or veterinary surgeon who was a member of the Royal College of Veterinary Surgeons and who was registered, but in the Peterborough district that

power had been overridden, and a man whom the College had refused to register was acting as veterinary inspector. He had not reported the circumstance to the Royal College of Veterinary Surgeons.

The *Chairman* recommended him to do so.

*Mr. Dickinson* believed that the local authority had power to appoint whom they pleased, and the Privy Council could not interfere with them. They could appoint a policeman if they liked.

The *Chairman* said they could appoint any person to act as veterinary inspector during the cattle plague or they could appoint any registered practitioner.

*Mr. Dickinson* observed that a policeman was appointed inspector in the Boston district, and he could perfectly understand what it was Mr. Mackinder was referring to. He had mentioned it to one of the Privy Council veterinary staff when he was in Boston some time ago, and he said that whatever the local authority did the Privy Council could not interfere with. It did not matter to the Privy Council if they appointed a policeman; they got the retaining fee, and the veterinary surgeons had to get what they could. They were entirely at the mercy of a policeman, and he thought it a great shame that they should be. He had not been called in to one fifth of the cases in his district.

The *Chairman* said that at Grantham all the cases of foot-and-mouth disease were left in the hands of a policeman to report when they were convalescent.

*Mr. Dickinson* said it was the same at Boston, and the policeman declared places infected and free just as he liked. And that was not all, he allowed their accounts, he examined them and initialled them before the local authority paid them.

*Mr. Runceman* said that the profession had it in their own hands—they could strike work. Unfortunately there was too much ill-will afloat, or they could make the Privy Council or any bench of magistrates in England come to terms.

The *Chairman* remarked that supposing they were to strike, and were to send in a petition to the magistrates of the division asking them to re-consider the appointment, they would tell them that there were other applicants for the office.

*Mr. Runceman* observed that was what he meant when he said that there was too much ill-will afloat. It was of no interest to him, but if he were the profession he should strike *en masse*. It was no use blaming the magistrates or anyone else; they had the profession to blame, for if one would not do the work another would.

The subject then dropped.

On the proposition of *Mr. Hoole*, seconded by *Mr. Whitworth*, Mr. Goforth Wynne, of Donington, was unanimously elected a member of the society, and on the proposition of *Mr. Carless*, seconded by *Mr. Dickinson*, Mr. H. H. Hall, of Burgh-le-Marsh, was elected a member.

G. Fleming, Esq., Professor Whalley, Professor Robertson, and T. Greaves, Esq., were elected hon. associates of the society.

The *Chairman* next called upon Mr. Whitworth to read a paper entitled, "What part do minute organisms play in disease?"

*Mr. Whitworth*, in reading the paper, said: Mr. President and Gentlemen,—I purpose offering for your consideration to-day a few remarks on this all important and engaging subject. It was my intention to have treated the matter more fully, but circumstances would not permit, yet I trust I shall offer sufficient food to bring about an earnest debate. The pathogenesis of disease is a subject which doubtless occupies many of your thoughtful moments, being, as it is in numerous instances, involved in the labyrynthian obscurity. Scientists have from time to time speculated in various theories. The one most in favour at the present time is, as you know, the germ theory; the experiments which have been made by its specialists demonstrating the correctness of their views, are most beautiful and praiseworthy, yet when we consider some of them in detail they are found wanting; perhaps I shall do well by selecting bacillus anthracis as a fair example. This life form is said to have the property of producing the disease we know by the name of splenic fever, and, without doubt, when these organisms are removed from an animal which is the subject of this malady, and introduced into the system of a healthy one, the chances of it not becoming affected by the identical disease are indeed very remote. This being so, are we to take it for granted that the bacilli are the sole factors in the production of the malady? What has the renowned Casteur and others shown? Why that after the process of tanning the bacilli become inert in the way of disease producers. Yes, but to my mind they have shown no more which is the pith of the matter I am privileged to-day in bringing before you. What a strange anomaly, that an organism said to be possessed of such specific properties should be rendered *hors de combat*, by being put on such good diet as chicken bouillon. The microscope reveals to us the fact that the bacilli have not undergone the slightest physical alteration during the process of attenuation. I think that if you follow me a little further we shall be able to see how it is this change in property is brought about. I look upon these organisms, from the lowest to the highest, simply as nature's scavengers, acting in accordance with the love of prey. The medium on which we exist is teaming with them, waiting as they are for their victims. They most certainly have selective power, for it can be easily demonstrated by preparing organic solutions of different compositions, and after exposure to the atmosphere for a certain length of time it will be found that one organism alone exists in all the solutions. This being so, need we be amazed at finding different organisms in different diseases consuming the metamorphosised tissues and fluids of the body, and the specific virus of the disease for which it has affinity? If a healthy animal be inoculated in some of these organisms, it is almost certain

that the same disease will result. But how is this brought about? Not in my opinion, by any specific properties of the bacillus, but by simple excretion of the virus of the disease in which it has been in contact. Does not the process of tanning support this view? After a series of cultivations the once fatal bacillus is rendered inert; yes, because it has eliminated the hurtful matter that was resident within it. If this view be correct, you will ask—how do you account for the origin of communicable disease? Most maladies, as you know, require a combination of agencies to induce them, but the class of disease of which we are treating requires but the one unchangeable and specific means, namely, contagion. The true nature of the principle yet remains a matter of speculation. If I may be so bold as to offer an opinion, I would say it is a volatile—sometimes fixed—poison produced by chemical processes with or without organic influences, and this not always completed outside the body, but waiting in the atmosphere or elsewhere for blood in a favourable condition of the completion of its direful mission. It is now, in my opinion, that the so-called germs of disease commence their attack, but instead of producing they are removing the products of disease and the *materies morbi* which primarily caused it. As to the varied degree of potency and mode of manifestations, this is no more a paradox than the difference in the operation of snake poison, woorara, cyamogen, &c. This is the vast problem which science has yet to strive at, but, alas, most probably she will have to rest content as to what has been given her, and reflect upon the wonders wrought by the Omnipotent One.

On the proposition of *Mr. Carless*, seconded by *Mr. Hoole*, a vote of thanks was accorded Mr. Whitworth for his paper.

On the proposition of *Mr. Carless*, seconded by *Mr. Runciman*, it was resolved that the next meeting be held at Peterborough.

*Mr. Mackinder* promised to read a paper on "Anthrax" at the next meeting.

The election of officers will take place at the next meeting.

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## THE WEST OF SCOTLAND VETERINARY MEDICAL ASSOCIATION.

The usual quarterly meeting of this Society was held in the Veterinary College, Glasgow, on Wednesday, October 24th. The President, Mr. Campbell, Kirkcudbright, in the chair.

The following members and friends were present: Messrs. Pottie and Houston, Paisley; Douglas, Dunoon; Macfarlane, Greenock; Peddie, Cathcart; Taylor, Cathkin; Constable, Inchture; Weir, Airdrie; Kerr, Dalry; Nisbet, Galston; Hadden, Biggar; Allan, Clarkston; M'Ilwraith, Milngavie; Pollock, Hamilton; Brown, Neilston; Bowie, Stranraer; W.

Anderson, Jun., J. Weir, Boyle, Wyper, Blue, Tweedley, Frew, Dickson, McLean, Pollock, Lees and the Secretary, Glasgow.

The minutes of the previous meeting having been read, amended and approved, the following gentlemen were proposed and elected members of the Association. Mr. M'Ilwraith, Milngavie; Mr. Bowie, Stranraer; Mr. M'Connell, Castle Douglas; and Mr. Nisbet, Galston.

The *President* having intimated that Mr. Robinson, Jun., Greenock, would read a paper at next meeting, delivered the following address:

GENTLEMEN,—In taking the chair as President of this Society allow me to express my thanks for the high and unexpected honour you have conferred upon me; and although I have a natural diffidence in approaching its duties, suggestive of my inability to perform them in the same zealous and efficient manner as those gentlemen who have previously occupied this chair, yet in the anticipation of your indulgence, and with such an efficient staff of office-bearers able and willing to make up for my shortcomings, I am confident the work of this year will be brought to a successful termination; and I shall hope for a continuance of the same kindness and consideration as you have so freely bestowed upon my predecessors, for which I will endeavour to prove myself worthy. My highest ambition is to make myself useful to members of my profession by laying before you what little experience I have gained, so as to add to the general knowledge, and thereby promote the interests of our Association and the progress of veterinary science. For is it not the duty of one and all of us to add our mite, so that we could safely say that we leave the profession better than we found it?

I will now draw your attention to the rapid progress made in veterinary science within the last few years. Not many years ago it was simply a profession for the cure of disease; now our functions are extending, and it is felt that we should not only be able to cure disease, but that we should also use means to prevent it. It is now recognised as one of the Institutions of the country, and rightly so, for in its hands is placed to a great extent one of the principal sources of the wealth of the nation, viz., its domestic animals. It is a profession which is expected to extend its sphere beyond that of medicine. Are we not closely allied to agriculture? and, with our knowledge of anatomy and physiology, should be largely instrumental in developing and in perfecting the various breeds of animals in our districts, so that if our opinion is asked to select a fitting sire to be put to a certain dam, if we judge from their anatomical conformation, we cannot go far astray. It is necessary that we should be good judges, and to attain such celebrity it would be well to pay particular attention to the various points and qualities, and be able to discriminate between the good and indifferent. We are not only acquiring a better knowledge with regard to the treatment of disease, but we are also doing a good deal towards the prevention of diseases, especially with regard to those epizootic and enzootic diseases which produce such ravages amongst our flocks and herds, as well as the equine species. A very important subject as affecting our domestic animals, and also, I fear, the pockets of the agricultural community, and thereby causing a national loss, was introduced by Captain Russell at the Veterinary Congress—"Suggestions for effective legislation for the prevention of contagious diseases in animals." How ineffective the Contagious Diseases (Animals) Act of 1878 is most of us have had some experience. But I do not myself so much blame the Act (which I think

a fairly good one) as the piecemeal way in which it is worked. When, as is the case in some counties, men totally unacquainted with the rudiments of science or of the diseases of animals are appointed to carry out this Act, probably with the advice of a chief constable at headquarters, we cannot wonder at its comparative failure, and that those who have to suffer complain of the restrictions to which they are subjected for apparently no good purpose. To render the Act effective it must be applied in all counties alike. Only duly qualified veterinary surgeons should be appointed as inspectors, and they should have the assistance and advice of sub-committees of practical farmers—one in almost every parish—with an executive committee at the head of affairs. With the appointment of such inspectors, and the assistance of such committees, larger discretionary powers should be given, as all of us who act as inspectors must feel that the special circumstances of some cases require different restrictions and methods to others. Police officers should assist the inspector when necessary, and the question of slaughter in some diseases, especially pleuro-pneumonia, epizootica, and swine fever, should, with general instructions, be left in the hands of the local committee, with the advice of the inspector. Such is the outline of what the working of the Act ought to be.

Within the last three years science has been startled by the grand and important discoveries of Koch, Pasteur, Chauveau, and others. In 1876 Koch while endeavouring to find out the cause of anthrocoid diseases discovered in the blood a minute organism, which he described as a rod-shaped body of a homogeneous transparent matrix about the length of a blood corpuscle, which he termed bacillus anthracis. Then followed Pasteur with his wonderful experiments with this bacillus anthracis. He found that after cultivating the bacillus anthracis in an organic solution as chicken broth, and repeating the operation until the fourth or fifth cultivation, then allowing the cultivated solution to stand over for a week, it becomes so attenuated as to be safely injected into the blood or used for inoculation, and he has proved to a demonstration that animals so operated upon are proof against another attack of anthrax fever. Such discoveries will have a tendency to revolutionise the theory of many diseases and their treatment. Specimens of the following bacilli are obtainable:—Bacillus anthracis, bacillus tuberculosis from cattle and from the human subject, typhoid bacillus, baccilli from septicæmia, diptheria, sheep-pox and putrefactive baccilli, and several forms of micrococci. From the foregoing discoveries there is every prospect that in course of time we shall be able by means of the different viruses of disease to make disease its own antidote by a process of inoculation.

Certainly we are indebted to our Continental brethren for these valuable discoveries. But you must take into consideration the circumstances under which these Continental veterinarians are placed. Nearly all the veterinary institutions of Europe (Great Britain excepted) receive State aid—in fact, are solely kept up by their respective Governments; and I am sure if any of you would take a trip to the Continent (as I did last year), and visit these Government Institutions, you would blush for your country, and probably return home streaming with hot indignation that our Government have not, like other nations, recognised the importance of our veterinary teaching institutions and the noble efforts of our president and those that sit with him in council. Surely it is time the veterinary profession should receive some substantial recognition. Are we not making rapid progress unaided? and is not our position rapidly improving? Not only are we rising in the estimation of the public, but we are compelling the admiration and attention of our sister profession—I mean the medical profession—and, as Dr. Fleming says, "the time is not far distant when

the veterinary profession will stand hand in hand with the medical profession as protectors of the public health and defenders of the public wealth." A great deficiency in our professional literature is gradually being supplied. Not many years ago we could not obtain a standard work on veterinary science, whereas now every veterinary surgeon who makes his profession a study will have no difficulty in filling his shelves with modern works by the leading men of the profession. Also, the editors of our journals keep us well posted up with all the recent scientific discoveries.

Within the last two years a great deal has been said, and much written, regarding the education and training of the veterinary student. I think it is our duty to tender our thanks and gratitude to Dr. Fleming and other members of Council for the zeal, energy, and stern integrity exercised by them in order to raise the veterinary profession to a level with other learned professions. Has the status of our profession not been raised by the action of Council in passing a bye-law, which is now in operation, that all students before entering our colleges must undergo a matricular examination in general knowledge; also that the minimum period of study necessary to obtain the diploma extend over two years and a half, instead of two sessions of six months each, as heretofore, so that now we have young men entering the profession with a higher standard of education, and a good knowledge of the different subjects taught in our colleges. Such men, with refined tastes and exalted views, will take their position in society and prosper, and without doubt to the want of these attainments is due the non-success of many graduates of the Royal College of Veterinary Surgeons.

I have no desire to enter into a discussion on veterinary politics. Nevertheless, it might be advisable that I should take advantage of this opportunity to give an opinion on the pupilage system. This I can give in very few words, not that I speak from mere fancy, as some of our teachers can testify that I have had considerable experience in the practical training of veterinary students. I perfectly agree with the popular feeling that every student should undergo a period of practical instruction before receiving his diploma. But the question is when or how should the student receive such training.

And in coming to a conclusion you should take into consideration the circumstances of the student as well as the demands of the majority of the profession. If the Council of the Royal College of Veterinary Surgeons allow themselves to be guided by the promptings of some members of the profession and compel every student to undergo a three years' pre-collegiate apprenticeship, the consequence would be to affect the attendance at our colleges to an alarming extent, simply because the professional training of the veterinary student would then be more expensive than the medical or other learned professions. If I venture an opinion on this subject, I should say let the student go to college first and complete his professional studies, then let him serve one year with a veterinary surgeon in a good mixed practice, and I doubt not that he could be taught more in three months than it is possible to teach him in a lifetime without the scientific knowledge of his profession. I also think it advisable that every student should place himself under a veterinary surgeon during the summer recess. How impossible would it be for a student to detect a functional derangement or morbid condition of any organ when he is not conversant with the healthy condition of that organ. If you carefully inquire into the qualifications of any young man who has served a three years' apprenticeship "What does he really know?"—simply the work of an ordinary groom or stable boy. Surely it does not require three years to teach an intelligent youth to groom a horse, bandage his legs, give a ball or drench, lift his feet, rub

on a blister, detect simple lameness, perform simple operations, and compound simple medicines, &c. So much for pupilage, now a few words on the Association. The advantages to be derived from attending the regular meetings of an association like this are obvious. Here we meet for social intercourse and mutual benefit. One reads a paper or gives a communication on a case that has come before his notice, and which some of us have not seen, another gives his experience concerning the same, and after full discussion and minute investigation we, as a whole, generally arrive at such conclusion as is most advantageous to the patient and science in general. I now ask one and all of you to stretch out a helping hand for the good of the Society. Our principal motive in meeting here is to gain knowledge, and in so doing let us be equally willing to impart it; let no member hide his light under a bushel, but freely let it shine for the benefit of the profession; let harmony prevail amongst us, so that we may be united in our actions both socially and politically.

There is a study I would like to stimulate in this Society—that is the study of Morbid Anatomy, and to those who may be present here to-day that have not commenced that branch of science I will direct my remarks. I can assure you it only requires a beginning to make you fond of it, and nothing would give me greater pleasure than to see a collection of morbid specimens belonging to this Society. The use of the microscope is not only useful to you in the practice of your profession, but it may be the means of supplying a healthful recreation whilst expanding and refreshing the mind, and who knows but one of you may be the means of benefiting science? I am proud to see that this branch of science is now taught in all our colleges, and I have no doubt that if any of you were in difficulties as to the practical details of preparing, hardening, cutting sections, mounting specimens, or manipulating the instrument, any teacher of Morbid Anatomy would only be too glad, I am sure, to render you every assistance. You are aware it is as easy for a man to cut fifty sections as one when you have the specimens prepared and in the microtome; and if we cultivate a system of circulating our specimens or exchanging one with another, it would not only augment our stock of morbid specimens, but be beneficial and instructive to us.

Before concluding I wish to draw your attention to the results of the meeting of the three Scotch Associations held in this hall last year. The principal topic before that meeting was 'How Scotland was represented at the Council of the Royal College of Veterinary Surgeons.' The consideration of this subject occupied the greater part of our sitting, and after an animated discussion, in which Professors M'Call, Williams, and Walley took part, the meeting unanimously recommended that three Scotch veterinary surgeons should be nominated, which was accordingly done, and you know the result. It was evident by the feeling at that meeting, that although we Scotch veterinarians were in a helpless minority the members of the profession would recognise Scotland's just claim, and elect our nominees to seats in Council. But these fair hopes have vanished, and the constitution of the Council remains unaltered, viz.: London returns, 10; English cities or provinces, 11; Ireland, 1; Scotland, 2. The Council elect the vice-presidents as follows: gentlemen in London, 2; gentlemen in English provinces, 4; total, 6. I only speak the sentiments of veterinary surgeons residing in Scotland when I say the Council is not a representative body as it is at present constituted; and seeing that Scotland annually educates more veterinary surgeons than England, that should in itself be cause sufficient to cherish a feeling of justice and fairness in our brethren across the border. True, many members of Council are Scotchmen, although settled in England; still, I hold that immediately a man

crosses the border, and fixes his domicile in England, Scotch interests then become a secondary rather than a primary consideration. And this fact is well demonstrated by the two gentlemen who represent Scotland in Council, who are not Scotchmen, but whom we recognise as naturalised countrymen, and in whom we have every confidence in fighting for or protecting our claims.

From my preceding remarks it is evident I admire the ability and energy the Council; but while considering we could not elect a board of better councillors, might it not be possible that a representative council would be equally good? And I beg to prognosticate the day is not far distant when we will have a distribution of seats, and that we will be represented in Council as we are in our great national assembly—Parliament.

If asked an opinion as to how I would distribute the seats, I would answer—let England have 12, Scotland 6, and Ireland 6.

I intended to have brought before your notice the importance of the National Veterinary Congress, and that valuable Act of Parliament, the Veterinary Surgeons Act; but having already trespassed too far, considering the limited time at our disposal, and the amount of work yet to be gone through, I will conclude by thanking you for your attention and patient hearing.

The usual vote of thanks terminated the proceedings.

J. Macqueen, *Secretary.*

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## ROYAL DUBLIN SOCIETY.

### Proposed Veterinary College for Ireland.

At a meeting of this Society, held November 4th, the Duke of Leinster in the chair,

*Mr. J. H. Ferguson*, in moving a resolution, of which he had given notice, on the subject of establishing a veterinary college in this country, said it might be in the recollection of his Grace that the commission over which he presided in 1868 for investigating the affairs of the Royal Dublin Society considered that very important question. Mr. D'Olier, who was exhaustively examined on that occasion, showed that from 1800 to 1826 a veterinary professor was attached to this Society. It would appear also that a select committee of the House of Commons in 1864 reported on the importance of a veterinary college for Ireland being established, and recommended that it should be placed under the control of the Royal Dublin Society. The veterinary profession had now become one of great eminence and practical utility, and the recent acts of Parliament relating to contagious diseases in animals had been so important that it became necessary to create a veterinary department in the Privy Council. Every poor-law union in Ireland was an employer of veterinary surgeons, so that the question affected the national taxation. His Excellency the Lord Lieutenant, he had reason to believe, was very favorable to the establishment of a veterinary college.

It was a hard thing that Irish veterinary surgeons should be required to proceed, at considerable expense, to London or Edinburgh to obtain their diplomas. Edinburgh had two colleges and London one. This country would not be satisfied with a school which would have merely examining powers; it should also be a diploma-granting school.

*Lord Powerscourt* thought the motion a good one, and that this Society, from its connection with agriculture, ought to take an interest in this subject. The question had been discussed, he believed, in the Lord Lieutenant's presence on several occasions, and his Excellency was favorable to the idea. The Government, he believed, also was well inclined to the establishment of a veterinary college in Ireland, and the adoption of this motion would assist them.

*Mr. G. J. Stoney* felt great pleasure in supporting the substance of Mr. Ferguson's motion, and this was a very opportune moment to resume consideration of the question. So far back as 1800 the Irish Parliament, in making a grant to the Dublin Society for certain purposes, ordered that if a balance remained it should be employed in forwarding a veterinary college. From that time the subject had never been wholly lost sight of by the Society. They had every encouragement at present to hope for practical results from a consideration of the subject. While he approved in principle of Mr. Ferguson's motion, he considered that it contained a few matters which might create difficulty, and he proposed as an amendment that it be referred to the Council to appoint out of its members such members of the Society, or others, as they might see fit, to report to the Council as to the most effectual means of founding an Irish college or school of veterinary surgery and medicine, and that a full report be laid before the Council at the earliest meeting this session which the Council could hold.

*Lord James Butler* said it did not seem very gracious to propose an amendment upon a resolution as to the spirit of which they were all agreed. (Hear, hear.)

After further conversation, Mr. Ferguson and Mr. Stoney conferred together, and a resolution proposed by the former, and seconded by Mr. Stoney, was unanimously agreed to, in the following form:—"That it be referred to the Council to appoint out of its members such members of the Society, or others, as they may see fit to report to the Council as to the most effectual means of founding an Irish college or school of veterinary surgery and medicine, with independent power of examining and conferring degrees; and that a full report be laid before a special meeting of the Council, to be held before March, 1884."

# CUCKFIELD DISTRICT AGRICULTURAL ASSOCIATION.

## Mr. C. L. Peel, C.B., J.P., on the Foot-and-Mouth Disease.

The distribution of prizes being over, the *Chairman* rose and said he had now the pleasure of proposing the toast of the day, "Success to the Cuckfield Agricultural Association." He thought their success was now really assured, and that they owed a great deal of that result to the committee and the indefatigable secretary, Mr. Clarke. It was sometimes said that farmers were given to grumbling. As far as his experience went, he did not think they differed very much from their neighbours in that respect—(hear, hear)—at all events, they could not complain that their case was neglected, either by the Government, by Parliament, or by the public. Mr. Gregory had alluded to the farming interest as being the most important interest of this country—(hear, hear)—and he (the Chairman) thought it was so. It had to manufacture the food for a population of something between thirty and forty millions, who consumed, upon an average, agricultural produce of the estimated value of something like £400,000,000 a year, and therefore the condition of agriculture was a matter which concerned them all; and every Government, from whichever side it might be elected, was bound by duty and by its interest to give its best consideration to the question. To his mind the most important recommendation of the late Royal Commission, of which the President was the Duke of Richmond, who was truly described "The Farmer's Friend"—(applause)—was "That further legislative provisions should be made for securing to tenants the compensation to which they are equitably entitled in respect of their outlay, and that the compensation should depend upon the additional value given to the holding." Effect had been given to that by the Agricultural Holdings Act, so that it was now to the interest of the owner or landlord that his land should be maintained in the highest state of fertility, and to the interest of the tenant to maintain that fertility, because he felt that he would receive full compensation for any improvement he had made by the expenditure of his capital and his own skill. Another important recommendation of the Commission was "That the administration of all matters connected with agriculture should be vested in one public department." This also had been done. A committee of the Privy Council had been appointed to whom all questions relating to agriculture had been referred. It is presided over by Lord Carlingford (the Lord President), and in his absence by Mr. Dodson, the Chancellor of the Duchy of Lancaster. An Agri-

cultural Department had been established from which the agricultural returns will in future be issued. Those for this year would be published in a few days, and he trusted they might be found useful. Lord Carlingford and Mr. Dodson were also considering whether some further returns may not be added in future years, which would give still more valuable information. The increase of live stock over 1882 was—cattle, 155,280; sheep and lambs, 750,503; pigs, 107,342; total increase, 1,013,125. This, he trusted, was satisfactory. (Hear, hear.) The acreage of corn crops this year, as compared with 1882, showed a total decrease in acreage of 212,586 acres, principally in the wheat crop, the figures being:

| | 1882. | 1883. |
|---|---|---|
| Wheat ..... | 3,003,960 | 2,613,147 |
| Barley ..... | 2,255,269 | 2,291,984 |
| Oats ..... ..... | 2,833,865 | 2,975,377 |
| | 8,093,094 | 7,880,508 |

To read the figures comprising the agricultural returns from the United States was almost enough to take one's breath away. In 1882 the number of live stock in that country was:—Cattle, 41,171,762; sheep and lambs, 49,237,291; pigs, 43,270,086; total, 133,679,139. Corn crops (acreage):—Wheat, 37,067,194; barley, 2,272,103; oats, 18,494,691; total, 57,833,988; while the maize crop, in addition to these, was 65,649,546 acres under cultivation. The Agricultural Department has, of course, absorbed the Veterinary Department, which, however, under the able guidance of his distinguished friend, Professor Brown, will still continue its valuable services to the public. The mention of the Veterinary Department brought the speaker to another recommendation of the Commission, to which at present effect has not been given, viz.:—"That the landing of foreign live animals should not be permitted in future from any countries as to which the Privy Council are not satisfied that they are perfectly free from contagious disease." This recommendation has been adopted by a resolution of the House of Commons on the motion of Mr. Chaplin, to the effect that no foreign live animals should be admitted from any country as to which the Privy Council are not satisfied that there is no chance of their sending us disease. It has been said that the Privy Council, under their existing powers, could give effect to this resolution, and that by not doing so they have allowed disease to be introduced into this country. As there appears to be some misapprehension on this subject, perhaps I may be allowed to make a short explanation. Under the previous act of 1869, all foreign animals were presumed to be healthy, and were admitted freely to our markets if they showed no symptom of disease on landing, except from certain countries where disease was known to exist, which were what was called "scheduled," animals from which were

slaughtered at the place of landing. The Act of 1878 exactly reversed this presumption. Under it all foreign animals were presumed to be dangerous, and were only admitted for slaughter at the port of landing. The main principle of the Act of 1878, as regards foreign animals, is that they should all be slaughtered at the port of landing in this country, subject to two exceptions to this general rule:—*First*, The Privy Council have power to prohibit absolutely the importation of animals, or of any specified kind of animals, from exceptionally diseased countries; and *Secondly*, They are required to suspend the rule for slaughter in the case of animals from exceptionally healthy countries. Now, what the Privy Council are called upon to do is practically, by their own action, to abolish the main principle, the standing rule of the Act, viz. the slaughter of foreign animals at the port of landing, and to retain only two exceptions —absolute prohibition and absolute freedom. For if the importation of animals from any country in which disease of any kind is known to exist is to be prohibited, and those from healthy countries are to be admitted, as they must be under the Act, there will be no foreign animals left to be slaughtered at the port of landing, a condition of things which is as contrary to the intention of Parliament as it is inconsistent with the provisions of the Act of 1878. If Parliament should see fit, after full consideration of the whole circumstances of the case, to prohibit the importation of foreign live cattle, instead of insisting on their slaughter at the port of landing, he was quite sure the Privy Council would carry out the intentions of the Legislature as stringently and faithfully as they had hitherto done under the Act of 1878. As to the effect of such a change, he might mention that during the nine months ended September 29th of the present year we had received from abroad:—Cattle, 365,936; sheep, 884,210; swine, 33,352; total, 1,283,498. Of these no less than 979,178 animals would have been excluded if the policy recommended by the Commissioners and by the resolution of the House of Commons had been in operation. In 1882 the foreign imports were:—Cattle, 343,814; sheep, 1,124,367; swine, 15,657; total, 1,483,838. If the policy indicated had been in force no fewer than—cattle, 200,416; sheep, 955,363; swine, 13,997; total, 1,169,776 would have been excluded. It was true we were suffering now from a very severe outbreak of foot-and-mouth disease. It had been said—he had seen it stated in the public press—that the Act of 1878 had failed in dealing with this disease of animals. He differed entirely from that statement. He did not mean to say it had done everything that could be done, but he said they had every reason to be satisfied, to a certain extent, with the working of the Act, for he observed that the number of outbreaks of foot-and-mouth disease in England, Wales, and Scotland during the 38 weeks from January to September 22nd (1883)—the latest return he had—was 10,107.

But, if he went back to 1871, when the last great outbreak occurred in this country, he found in four weeks alone, in the month of September, 14,526 outbreaks, as against 10,107 in nine months of the present year. Inconvenient and harassing as he admitted the Orders of the Privy Council to be in many cases, they had certainly been a check upon the disease by the restriction they had imposed. He would add that the present increase of disease has not been caused by the introduction of foreign animals, for this reason, that for the last three months, that is, from a date previous to the passing of Mr. Chaplin's resolution, not a single foreign animal suffering from foot-and-mouth disease had been landed at any port in the United Kingdom. But, remember, there are other diseases besides foot-and-mouth disease. We had had no cattle-plague or sheep-pox. The returns of pleuro-pneumonia were most satisfactory. This disease was so insidious in its character that it was very easy for a foreign animal to show no symptom of it on its landing, and yet introduce the disease into this country. In 1877, the year before the passing of Contagious Diseases (Animals) Act, there were 2007 fresh outbreaks of pleuro-pneumonia, and 5330 animals attacked; in 1882, 494 fresh outbreaks and 1200 animals attacked; and up to September 22nd of the present year 255 fresh outbreaks, and 714 animals attacked. This was a very satisfactory result, and he believed Professor Brown would agree with him in saying that even these figures were exaggerated. (*Professor Brown:* Hear, hear.) If the local authorities would be a little more free with the use of the pole-axe in the case of healthy animals that have been herded with diseased animals, we should soon be able to look upon contagious pleuro-pneumonia as a thing of the past, as far as this country was concerned. The Chairman then, in the course of a few further observations, submitted the toast of success to the Association, remarking that these societies were working great benefit by encouraging friendly competition amongst neighbours, by enabling them to compare produce one with another, by maintaining those happy relations subsisting, he was glad to say, among all classes in this district, and last, but not the least, by bringing them together at these social meetings. He had great pleasure in coupling with the toast the name of Major Sergison. (Applause.)

*Major Sergison*, in the course of his reply, stated that he had been very successful at the show that day. His exhibits had been entirely grown as the result of chemical experiments made by him, and which he hoped would be tried by others. They could try it on a very small scale, for small quantities could now be purchased for half-a-crown, as Messrs. Stenning and Arnold, Brighton, had consented so to sell it. If they tried the experiment he was sure that they would ever after use the manure. His sole object was to benefit agriculture, he having no interest whatever in the sale of the manures The recipe he had used for wheat was:—In the autumn

before harrowing in the seed—1 cwt. ground kainite; ½ cwt. ground coprolite flour; ½ cwt. steamed bone flour; 1 cwt; nitrate of soda. In the spring—½ cwt. sulphate of potash. 1 cwt. mineral superphosphate; ½ cwt. steam bone flour; 1 cwt. nitrate of soda. No knowledge of chemistry was required, because Messrs. F. C. Hills, of Deptford, or Stenning and Arnold, of Brighton, would supply the ingredients. Continuing, he said he had always taken a great interest in the Association; he believed it was of great benefit to the district, and he trusted it would continue for many years to come, especially the ploughing match. (Applause.)

## Facts and Observations.

Trichinosis.—In consequence of the reported outbreaks from trichinosis in Saxony, the French Minister of Commerce, at the instance of the Committee of Public Health of France, has despatched a mission to the spot to inquire into and report upon the circumstances. Dr. Brouardel has been commissioned to preside over the mission.—*Med. Times and Gazette.*

Imperforate Anus in a Mare.—Mr. Newman, veterinary surgeon, Havant, Hants., writes us that his attention was recently called to a young mare, the property of a butcher at Southsea, who was regularly working her in his business, in which the fæculent matter was discharged through the vagina, the anus being imperforate. The mare had every indication of good health, care being taken in the selection of her food to prevent undue accumulation of hard fæculent matter.—*Ib.*

## THE FITZWYGRAM PRIZES.

Lieutenant-General Sir Frederick Fitzwygram's Veterinary Prizes for the current year will be open to three candidates from each college, to be selected by the Principal of the College.

All who are or have been students during the year ending April 30th, 1884, are eligible for selection.

The Prizes, scheme of examination, and other arrangements generally, will be the same as last year.

The examination will take place on the second Tuesday in May, 1884.

Further details can be learned on or after 1st April from the Secretary of the Royal College of Veterinary Surgeons, 10, Red Lion Square. —Aldershot, *November 19th*, 1883.

## AWARD OF PRIZES AT THE ROYAL VETERINARY COLLEGE.

We are requested to add the name of Mr. Evan Phillip Evans to the list of students to whom certificates were presented at the opening of College Sessional Course of Lectures. Mr. Evans held office as Monitor during the preceding Session, and performed the duties satisfactorily to the Professors.

## BOTANY PRIZE, ROYAL VETERINARY COLLEGE.

*Botany.*—It was announced in our last issue (p. 733) that the Royal Veterinary College class prize for 1883 had not yet been decided upon. We have now the pleasure to state that the prize has been awarded to Mr. Morris Grant Byerley for the best collection of grasses, which also included cereals as well as many sedges and rushes. In this connection Mr. H. F. Reynolds also deserves honorable mention.—Eds.

## THE CENTRAL SOCIETY'S CONVERSAZIONE.

We are desired to intimate that the proposed conversazione of the Central Veterinary Medical Society is postponed for the present. The date, when fixed, will be duly announced.

## OBITUARY.

We deeply regret to have to record the death of Mr. Hartley Thomas Batt, F.R.C.V.S., London, a highly respected member of the profession. Mr. Batt obtained his diploma May 22nd, 1850, and entered into practice in the West of England, where he remained about five years. He then removed to London, where by industry and an honorable career, he soon developed a large and lucrative practice. He was elected a member of the Council of the Royal College of Veterinary Surgeons in 1876, a position he held to 1880. He was also a member of the Council of the "Veterinary Medical Association," an Institution connected with the Royal Veterinary College, for the long space of twenty-six years, and in which he always evinced the deepest interest. His death, which took place on November 7th, in the 55th year of his age, was caused by ulceration of the stomach, which was accompanied with frequent and profuse hæmorrhage. Few men stood higher in the estimation of his professional brethren and the public. Many will have to regret his loss, as his generosity could always be relied on to help the deserving in distress.

We have also to record the death, on November 10th, of Mr. R. S. Bailey, M.R.C.V.S., late of Lambourne, Berks, in the 75th year of his age. Mr. Bailey served for some time as Veterinary Surgeon to the 1st R. S. Lancers, British Auxiliary Legion in Spain. His diploma bears date March 3rd, 1836.

To this we have to add the death, on November 14th, of Mr. George Deveson, M.R.C.V.S., Stevenage, Herts, in the 25th year of his age. His diploma bears date April 1st, 1880.

And of Mr. Jessie Osmond Vincent, M.R.C.V.S., Swindon, Wilts. Diploma dated May 26th, 1852.

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